Vol. 27. No. 6. pp. 273 - 330
Abstracts 1631 - 1949

June, 1957

THE VETERINARY BULLETIN

COMPILED FROM WORLD LITERATURE

Prepared by the
COMMONWEALTH BUREAU OF ANIMAL HEALTH
WEYBRIDGE, SURREY
ENGLAND

Published by the
COMMONWEALTH AGRICULTURAL BUREAUX
FARNHAM ROYAL, ENGLAND

COMMONWEALTH MYCOLOGICAL INSTITUTE
11 JUN 1957

Commonwealth Agricultural Bureaux

EXECUTIVE COUNCIL

Member	*Representing*
C. E. LAMBERT, C.M.G. *(Chairman)*	Colonial Territories.
T. SWAMINATHAN, I.C.S. *(Acting Vice-Chairman)*	India.
W. C. TAME	United Kingdom.
J. G. MALLOCH, M.B.E., Ph.D. (acting)	Canada.
A. SHAVITSKY	Australia.
V. ARMSTRONG, Ph.D.	New Zealand.
E. D. ANDREWS	Union of South Africa.
Vacant.	Pakistan.
V. M. ABEYSEKERA (acting)	Ceylon.
J. E. C. COVENTRY	Federation of Rhodesia and Nyasaland.

Sir HERBERT HOWARD *(Secretary)*

COMMONWEALTH BUREAU OF ANIMAL HEALTH, WEYBRIDGE

Director:
M. CRAWFORD, M.R.C.V.S.

Assistant Director:
R. MACK, M.R.C.V.S.

Scientific Assistants:
E. GLASNER
E. V. LORD
M. G. GOTTS, B.A.
T. E. GATT RUTTER, M.R.C.V.S., B.Sc.
F. EILEEN WILLIAMS, B.A.

Consultant Director:
A. W. STABLEFORTH, D.Sc.(London), M.R.C.V.S., D.V.S.M.
Director, Veterinary Laboratory, Ministry of Agriculture and Fisheries, Weybridge.

ABSTRACTORS CONTRIBUTING TO THIS ISSUE

UNITED KINGDOM

A. Ackroyd, M.R.C.S., L.R.C.P.
R. J. Fitzpatrick, B.SC., M.R.C.V.S.
M. Gitter, M.R.C.V.S.
Dr. F. K. Leeb.
H. Scott McTaggart, B.A., B.SC., M.R.C.V.S.
L. M. Markson, M.R.C.V.S.
C. B. Ollerenshaw, B.SC., PH.D.
D. S. Papworth, M.SC., A.R.I.C.
A. E. Pierce, M.SC., PH.D., F.R.C.V.S., D.V.S.M.
W. A. Pool, M.R.C.V.S.
D. Poynter, B.SC.
D. S. Rabagliati, B.SC., F.R.C.V.S., D.V.S.M.
N. Saba, B.A.(CANTAB.)
J. R. Todd, M.AGR.

CANADA

G. K. Sweatman, B.A.

AUSTRALIA

A. W. Blackshaw, B.V.SC.
D. C. Blood, B.V.SC.
Alma G. Culey, M.SC.
H. McL. Gordon, B.V.SC.
N. P. H. Graham, B.V.SC.
Margaret H. Hardy, M.SC., P.HD.(CANTAB.)
L. Hart, B.V.SC., H.D.A.
M. D. Murray, B.SC., M.R.C.V.S.
R. I. Sommerville, M.AGR.SC.(HONS.), N.Z.

REPUBLIC OF IRELAND

J. A. Nicholson, M.A., PH.D., M.R.C.V.S.

COMMONWEALTH BUREAU OF ANIMAL HEALTH

THE

VETERINARY BULLETIN

Vol. 27] June, 1957 [No. 6

DISEASES CAUSED BY BACTERIA AND FUNGI

THÖRNE, H. (1957). Stafylococcer och mastiter. Några iakttagelser. **[Staphylococci in mastitis.]**—*Nord. VetMed.* **9,** 34-40. [In Swedish. English and German summaries. English summary modified.] **1631**

T. isolated 1,480 staphylococcal strains from quarters with clinical mastitis. The various strains were subjected to the coagulase test (K), mannite fermentation (M) and the CAMP-reaction (C). Pigmentation and haemolysis were studied in cultures on cattle blood agar. The strains were differentiated as follows:— Type I: positive to K, M and C (271 strains); Type II: positive to K and M but negative to C (124 strains); Type III: positive to K but negative to M and C (246 strains); Type IV: negative to K, M and C (839 strains). Haemolysis was indistinct with strains of Types III and IV, but distinct with strains of Types I and II. Within any particular herd one type was often dominant. Comparison was made between bacteriological findings and clinical observations including changes of secretion. T. considers that the mastitis in herds in which Type IV is dominant is mainly due to environmental factors, and the prognosis relatively good. Where Type I predominates, he considers the staphylococci to be an important aetiological co-factor, and the prognosis less favourable. In chronic mastitis with atrophy and induration either Type I, II or III was demonstrable in a high percentage of quarters, the same type persisting year after year. T. discussed the possibilities for a more detailed differentiation of staphylococci.

JUHÁSZ, B. & TAKÁCS, J. (1956). **Properties of staphylococcal strains and the identification of enterotoxin.**—*Acta vet. hung.* **6,** 141-149. [In English. Russian summary.] **1632**

The authors studied pigment production, sugar fermentation, gelatin liquefaction, pathogenicity for mice, coagulase formation, toxin production and behaviour in Zeissler's agar-sheep blood medium of 16 *Staphylococcus aureus,* one *Staph. citreus* and 26 *Staph. albus* strains. In frogs (*Rana esculenta*) injected with 2 ml. of culture filtrate into the dorsal lymph sac there was gastric antiperistalsis from the pylorus towards the cardia. This test was regarded as specific for *Staphylococcus* and *Proteus* enterotoxin.—E.G.

PRIGAL, S. J. & DUBOS, R. J. (1956). **Effect of allergic shock on fate of staphylococci in the organs of mice.**—*Proc. Soc. exp. Biol., N. Y.* **93,** 340-343. **1633**

Anaphylaxis elicited in mice by bovine serum was augmented when the sensitizing dose of serum was given conjointly with pertussis vaccine. When virulent staphylococci were given intravenously together with the shocking dose of serum the resulting infection was more severe in sensitized mice which suffered mild anaphylaxis than in mice pretreated with pertussis vaccine alone.—A. E. PIERCE.

NIKITIN, V. Y. (1956). **[Treatment of acute infectious mastitis in rabbits by epipleural procaine nerve block.]**—*Veterinariya, Moscow.* **33,** No. 12. pp. 35-36. [In Russian.] **1634**

Infectious mastitis caused the death of 48 does, and a further 150 had to be killed, at a fur farm in the Tatar A.S.S.R. during 1953/54. Because no effective treatment was available, N. tried anaesthesia of the splanchnic and sympathetic nerves by the epipleural procaine block described by Mosin [*V.B.* **26,** 2715]. The dose of 0·5% procaine soln. was 4–5 ml. for each side of the spine. Each rabbit was given only one treatment by this method: all of 11 does with acute mastitis recovered within 2–7 days after treatment, but only 6 out of 25 with chronic purulent mastitis recovered.

—R.M.

TROISE, C. & GUIDA, V. O. (1956). Vaginite granulosa infecciosa dos bovinos. Isolamento do agente etiológico, reprodução da moléstia e tratamento. **[Infectious granular vaginitis of cows caused by a haemolytic streptococcus; reproduction of the disease and treatment.]** —*Biológico*. **23,** 156-160. [English abst.] **1635**

A haemolytic streptococcus was isolated. The disease was reproduced by inoculation (into the vaginal mucosa of a 6-month-old heifer) of the organism, which was again recovered from the vaginal lesions. Curetting followed by local treatment with $KMnO_4$ (1 : 1000) and 2 i/m injections of 300 mg. tetracycline daily for 12 days gave good results. Curetting was not necessary in recent cases. —T.E.G.R.

GIANNI, A. & DI NARDO, A. (1956). L'influenza della prolattina sulla infezione sperimentale da pneumococco del topo. **[Prolactin in the treatment of experimental pneumococcal infection in mice.]**—*Bol. Ist. sieroter., Milano*. **35,** 180-187. [English summary.] **1636**

Treatment of experimentally infected mice caused an increased resistance and marked hyperplasia of the reticulo-endothelial system. It is considered possible that in chronic natural infection the r.e.s. becomes sensitive to prolactin.—T.E.G.R.

SEIDEL, G. & STRASSMANN, R. (1956). Zur bakteriologischen und serologischen Diagnose des Milzbrandes. **[Bacteriological and serological diagnosis of anthrax.]**—*Arch. exp. VetMed.* **10,** 335-357. **1637**

The authors studied 47 strains of *B. anthracis* and 97 strains of anthracoid organisms, using methods currently employed for differentiating between the two types of organisms. The following methods were of value: agar and blood-agar plates, cover-glass culture, Petragnani and broth media, motility tests, precipitin tests, pathogenicity for lab. animals. They stated that microscopical study of morphology, spores and capsules, as well as haemolytic and fermentative reactions, were of no value for differentiation.—R.M.

WHITE, T. H. (1956). **Cutaneous anthrax.**—*Brit. med. J.* Dec. 1st 1300. **1638**

In Kenya during the past 7 years over 500 cases of cutaneous anthrax in Africans have been treated successfully. There have been 3 deaths only, all in small children. Adults respond well to procaine penicillin in oil in i/m doses of 300,000 units daily until 24 hours after they become afebrile (usually in 3–4 days). Children require heavier dosage.—M.G.G.

D'APICE, M. (1956). Campanhas sanitárias no estado de S. Paulo. III. Campanha contra a tuberculose bovina. **[Disease control in S. Paulo. III. Bovine tuberculosis.]**—*Biológico*. **22,** 118-122. **1639**

The methods of control adopted in other countries—the U.S.A., Denmark, Belgium, etc.—are reviewed. The measures recommended for São Paulo are tuberculin testing at regular intervals, immediate disposal of reactors and suspects, and improved sanitation. B.C.G. vaccination is not considered advisable and the unrestricted use of antibiotics and of chemotherapeutic agents does not provide the solution to the problem.—T.E.G.R.

TYULEN'KOVA, M. (1956). **[Questions of the prophylaxis and control of bovine TB. Report of a meeting of the Scientific-Technical Council of the Ministry of Agriculture of the U.S.S.R.]**—*Veterinariya, Moscow*. **33,** No. 12. pp. 81-82. [In Russian.] **1640**

At a meeting in June 1956, the Council approved a projected 5-year plan for eradicating bovine TB. from the U.S.S.R. [no details given]. It also recommended that P.P.D. tuberculin be more widely used, and that the subcutaneous tuberculin test be dropped. Regarding meat inspection of fowls, when TB. of the organs was found, the organs should be destroyed and the carcass boiled for at least 60 min. before being eaten. Milk from reacting cows should be heated at 85°C. for 30 min., or boiled for 10 min. Greater attention was to be paid to the question of TB. of bovine origin in human beings.—R.M.

VÉRON, M. (1956). Application à la tuberculose d'une technique de fixation du complément utilisant l'hémolyse a 50 p. 100. Comparison des résultats obtenus avec ceux de l'hémagglutination passive. **[Application to TB. of a complement-fixation test with readings at 50% haemolysis. Comparison with passive haemagglutination.]**—*Ann. Inst. Pasteur*. **90,** 738-750. [English summary.] **1641**

Complement-fixation tests, using a methyl alcohol extract as antigen, were read at 50% haemolysis by a photocolorimetric method. The test was performed with serum from infected human beings, cattle and g. pigs, and the results were compared with those of the Middlebrook-Dubos haemagglutination test. With

sera from 10 cattle which reacted to the tuberculin test (TB. confirmed at slaughter), both tests were negative in one case (and in an additional case which gave a false positive reaction to tuberculin); both tests were positive in 8 cases; in the remaining case the haemagglutination test was positive and the c.f test negative.—R.M.

GOURDON, R., HENRY, G., HOUDINIÈRE, A., QUINCHON, C. & GUILLO, B. (1957). Les réactions d'hémagglutination passive et d'hémolyse conditionnée de Middlebrook-Dubos dans la tuberculose bovine. **[Middlebrook-Dubos passive haemagglutination and conditioned haemolysis in bovine TB.]**—*Ann. Inst. Pasteur.* **92,** 433-435. [English summary modified.] **1642**

The results obtained are in good agreement with those of other workers using the same technique with other antigens: Dubos water extracts, tuberculins or tuberculin fractions. They allow similar conclusions: active forms of TB. give positive high titre reactions; calcified lesions, even when very extensive, give low antibody titres.

But a not negligible percentage of normal animals also give positive reactions. Conversely, animals presenting severe and extensive forms of TB. often give negative or doubtful reactions. It would therefore be difficult to use the Middlebrook - Dubos reactions for diagnosis and prognosis of bovine TB.

MANUKYAN, Z. K. (1955). **[Non-specific tuberculin reactions in cattle with fasciolasis.]**—*Trud. armyan. nauchno-issled. vet. Inst.* **8,** pp. 25-28. [In Russian.] **1643**

M. was unable to detect any influence of liver fluke infestation on the results of the double intradermal tuberculin test.—R.M.

KERNEIS, J.-P., MONROTY, A., TRICHEREAU, R., BRUNEAU, Y. & CHARENTON, J. (1956). Contribution à l'étude de la strongylose pulmonaire du mouton, ses relations avec la tuberculose. **[Pulmonary strongylosis of sheep in relation to TB.]**—*Rev. Path. gén.* **56,** 1927-1937. [English and Spanish summaries. Discussion: pp. 1937-1940. **1644**

Gross lesions of pulmonary TB. were found in only 2 out of 14,000 sheep examined; but of 60 cases of pulmonary strongylosis (*Protostrongylus rufescens*) which were examined histologically and bacteriologically, concomitant TB. was found in 4 cases.

—H. SCOTT MCTAGGART.

WALZL, H. (1956). Zur Tuberkulose des Zentralnervensystems bei der Katze. **[TB. of the central nervous system of cats.]**—*Rindertuberkulose.* **5,** 199-205. **1645**

A description of two specific foci in the cerebrum of a cat with generalized TB. The primary infection was of the digestive tract.

—E.G.

STERNBERG, J. & FRAPPIER, A. (1956). Recherches faites avec les mycobactéries marquées. VI. Dispersion du BCG marqué (au ^{32}P) chez le cobaye. **[Studies with labelled mycobacteria. VI. Dispersion of B.C.G., labelled with radioactive phosphorus, in g. pigs.]**—*Ann. Inst. Pasteur.* **90,** 533-574. [English summary.] **1646**

G. pigs were killed between 2 and 5 days after the s/c inoculation of 10^8 B.C.G. organisms labelled with radioactive phosphate. Almost half the injected dose was recovered by culture from the site of injection, and 10% of the total dose was recovered from all other tissues by the cultural method. Assay of radioactivity indicated that the tissue concentration of the isotope equalled 50% of the injected dose. The pattern of distribution of labelled B.C.G. killed by heat differed from that of labelled living B.C.G. The tissue distribution of radioactive phosphorus injected with B.C.G. differed from that of the isotope when administered alone as sodium phosphate.—R.M.

KONNO, K. (1956). **New chemical method to differentiate human-type tubercle bacilli from other mycobacteria.**—*Science.* **124,** 985. **1647**

The method depended on the production of nicotinic acid by human type tubercle bacilli, grown for 1–3 months on Loewenstein-Jensen solid medium. Neither bovine or avian types, nor saprophytic mycobacteria, produced nicotinic acid. The vitamin was detected by adding 1 ml. of 10% cyanogen bromide soln, to a few colonies suspended in 1 ml. of 4% aniline soln.: its presence was revealed by the development of an intense yellow coloration.

—R.M.

PATTERSON, R. A. (1956). **A new method for isolation of *M. tuberculosis*.**—*Amer. J. publ. Hlth.* **46,** 1429-1430. **1648**

Description of a method for the isolation of tubercle bacilli from sputum, gastric washings and faeces, using Petragnani's medium as modified by Frobisher and a digestant consisting of 10% trisodium phosphate soln. in distilled

water and "zephiran," a proprietary mixture of alkyl dimethyl benzyl ammonium chlorides.
—E.G.

SELKON, J. B. & MITCHISON, D. A. (1957). **Viable counting of *Mycobacterium tuberculosis* in a silica gel medium.**—*J. gen. Microbiol.* **16,** 229-235. [Authors' summary copied *verbatim.*] **1649**

A method is described in which deep counts of *Mycobacterium tuberculosis* are made in a defined medium solidified with silica gel. The method was accurate, simple and safe. The contamination rate was low. Deep counts were higher than surface counts on plates. The defined medium was superior to Kirschner medium.

SALVADOR, R., BOLLINELLI, R. & BUTEL, A. (1956). Intoxication massive au cours de la préparation d'une tuberculine. [**Poisoning by tuberculin in laboratory workers.**]—*J. Méd. Bordeaux.* **133,** 768-770. [Abst. from Abst. in *Bull. Hyg., Lond.* **31,** 1207-1208. (1956).] **1650**

Headache, abdominal pain, nausea and shock are reported in 4 people who inhaled an aerosol of tuberculin escaping from a centrifuge. The symptoms abated after injection of 50 mg. of cortisone. There were no toxic symptoms in 2 non-reactors who were exposed to the aerosol.
—M.G.G.

I. HANKS, J. H. (1956). **Retention and differentiation of carbolfuchsin-stained mycobacteria in diagnostic films.**—*Amer. Rev. Tuberc.* **74,** 597-607. [French and Spanish summaries.] **1651**

II. HANKS, J. H. (1956). **Retention and differentiation of mycobacteria in tissue sections.**—*Ibid.* 608-615. [French and Spanish summaries.] **1652**

I. Best results for the demonstration of mycobacteria in smears were obtained by the judicious, rather than the excessive, use of carbolfuchsin, and by the use of decolorizing agents which conserved the carbolfuchsin complex in mycobacteria, while displacing it from cells and background components. For decolorizing, acidified sulphates (*e.g.* 2·5% potassium aluminium sulphate in 2·5% sulphuric acid) were considered to be better than acid-alcohol. A further improvement was the incorporation of sulphuric acid in the methylene blue counterstain (*e.g.* 20 vol. of 1% aqueous soln. methylene blue mixed with 80 vol. of 5% sulphuric acid).

II. Mycobacteria were lost from paraffin-embedded sections during rapid removal of paraffin, and also as a result of turbulent interactions between alcohol and solvents or water. Higher proportions of the organisms were retained by slow removal of paraffin, by procedures which avoid the use of alcohol, and by decolorizing and counter-staining with aqueous reagents. However, smears prepared from cut surfaces of organs were more suitable for the identification of mycobacteria than paraffin sections.—R.M.

HARDING, H. P. (1957). **Experimental infection with *Mycobacterium johnei.* II. The histopathology of infection in experimental goats.**—*J. comp. Path.* **67,** 37-52. [Author's conclusions slightly modified.] **1653**

The histopathology of Johne's disease in experimentally infected goats was described. Lesions were found in all lymph nodes and organs examined. The mesenteric lymph nodes and the intestines had lesions most frequently, but they were found in all the livers and 70% of the lungs from animals in which the infection had progressed beyond the primary complex. Other organs and nodes were inconstantly involved, the hepatic lymph nodes, kidneys and spleen, in that order, being most likely to show lesions.

There was a high degree of correlation between the presence of lesions and the isolation of *M. johnei* in culture. Some of the discrepancies may have been due to the localized distribution of lesions within an organ; insufficiently sensitive techniques probably account for others. There is also the probability that in some instances organisms had only just reached the organ and had not had time to give rise to histologically recognizable changes; or on the other hand that lesions persisted for some time after the organisms had been killed by the body defences.

ROBERTS, D. S. (1957). ***Corynebacterium equi* infection in a sheep.**—*Aust. vet. J.* **33,** 21. **1654**

C. equi was isolated from a sheep affected with chronic pneumonia and pleurisy.

SIKES, D., NEHER, G. M. & DOYLE, L. P. (1957). **Studies on arthritis in swine. III. The influence of desoxycorticosterone in normal and arthritic swine due to erysipelothrix infection.**—*Amer. J. vet. Res.* **18,** 101-108. **1655**

To study the effect of hormonal therapy on arthritic pigs, the authors produced a chronic proliferative arthritis by infecting (i/v) 24 pigs with *E. rhusiopathiae.* Of 2 healthy pigs injected

s/c twice weekly with 1 g. deoxycortone acetate (DCA) suspended in 20 ml. sesame oil, one died on the 21st day, the other developed paralysis and had to be slaughtered during the sixth week; two others given doses of 0·5 g. for 25 weeks survived. Two more, given 2 g. DCA weekly plus 75 mg. cortisone daily for 25 weeks developed acute arthritis. In 2 pigs with acute polyarthritis due to *E. rhusiopathiae*, s/c injections of 1 g. DCA twice weekly plus 75mg. cortisone daily, for 8 weeks, resulted in remission of symptoms and marked clinical improvement; in 2 others given 0·5 g. DCA twice weekly plus 50 g. cortisone daily the results were similar. The different effect produced by these hormones in normal and arthritic pigs could not be satisfactorily explained.—F. K. Leeb.

Kucsera, G. (1956). Wirkung ultravioletter Strahlen auf den Schutzwert des Schweinerotlauf-serums. **[Effect of ultraviolet irradiation on the protective value of swine erysipelas serum.]**—*Acta vet. hung.* **6,** 231-241. [In German. Russian summary.] **1656**

The possible use of ultraviolet light produced by a low pressure mercury vapour lamp for sterilization of swine erysipelas serum was investigated. The protective value of serum decreased in proportion to the length of irradiation. In serum of equine origin it was 20-30% lower than that of porcine origin. Irradiation for 1–5 min. reduced the protective value of porcine immune serum only by 4–8%, whilst its sterilizing effect was satisfactory.—E.G.

Szynkiewicz, Z. (1956). Płynna wzbogacająca pożywka z żółtkien jaja kurzego do hodowli włoskowców różycy. **[A culture medium for *E. rhusiopathiae*.]**—*Acta microbiol. polon.* **5,** 81-84. [In Polish. English summary.] **1657**

A medium for the cultivation of *E. rhusiopathiae* was described, consisting of 1% peptone, 0·5% disodium hydrogen phosphate, 1% glucose, 7% egg yolk medium described by Besredka, in horse meat extract. The optimum pH was 7·8–8·0.—E.G.

I. Kotov, V. T. (1955). **[Variability of *Erysipelothrix rhusiopathiae* and attempts to obtain a vaccine strain.]**—*Trud. voronezh. oblast. nauchno-issled. Vet. opuit. Stants.* No. 4. pp. 5-16. [In Russian.] **1658**

II. Kotov, V. T. & Tsukanov, G. I. (1955). **[Field trials of swine erysipelas vaccine prepared at Voronezh.]**—*Ibid.* pp. 17-24. [In Russian.] **1659**

III. Kotov, V. T. (1956). **[Swine erysipelas and the basic problems of its general and specific prophylaxis.]**—*Proc. Lenin Acad. agric. Sci.* **21,** No. 11. pp. 29-35. [In Russian.] **1660**

I. A variant "K_2" of *E. rhusiopathiae*, avirulent and immunogenic in pigs, was obtained at the Voronezh Veterinary Station from the third passage in the synovial fluid of the hock joint of rabbits of another variant ("K_1"). The latter was obtained from a lab. strain used for the production of formolized vaccine, by culturing smooth colonies on glycerol meat-peptone broth for 8–10 hours at room temp. and then for 48 hours at 39° to 40·3° C.

II. Nearly 4 million pigs were inoculated s/c with 0·4 ml. of the Voronezh live vaccine prepared from strain "K_2". They were reinoculated after 10–14 days with 0·8 ml. All pigs more than 2 months of age were inoculated: sows were inoculated up to 7–10 days before farrowing or after 5–7 days after farrowing. Reactions to inoculation (fever, loss of appetite etc.) were observed in 0·23% of the pigs, and 0·012% of them died. Swine erysipelas was recorded in 0·07% of inoculated pigs, and 0·02% of them died.

III. A discussion, with references to the vaccines in current use in the U.S.S.R., including that prepared at Voronezh.—R.M.

Szynkiewicz, Z. (1956). Czynnik wzrostowy dla włoskowców różycy zawarty w ekstraktach alkoholowych i acetonowych żółtka jaja kurzego. **[A growth factor for *E. rhusiopathiae* from egg yolk.]**—*Acta microbiol. polon.* **5,** 85-87. [In Polish. English summary.] **1661**

S. demonstrated a substance in egg yolk, which in a 0·1% soln. of sodium hydroxide stimulated growth of *E. rhusiopathiae*. This factor resembled a lipid, was extractable by ethanol and chloroform and inactivated by hydrochloric acid.—E.G.

Boyer, C. I., Jr. & Brown, J. A. (1956). **Studies on erysipelas in turkeys.**—*Proc. 28th Ann. Meet. N. E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 13 pp. [Mimeographed.] **1662**

Various routes of infection were studied. The i/v route produced 100% mortality followed, in decreasing order, by s/c inj., scarification, i/m inj., and other routes. Age and sex did not appear to have any bearing on mortality. Vaccination (with a commercial killed vaccine affording protection for 15 weeks) and antibiotic treatment are discussed.

—T.E.G.R.

HAUPTMAN, B., JASIŃSKA, S., SOBIECH, T. & WACHNIK, Z. (1956). Listerioza owiec. **[Listeria infection in sheep.]**—*Méd. vét., Varsovie.* **12,** 577-584. [In Polish. English and Russian summaries.] **1663**

An account of an outbreak in which 152 out of a flock of 416 sheep died. The highest mortality rate (100%) was among lambs. The clinical symptoms were inappetence, cachexia, anaemia, diarrhoea, convulsions and inability to stand. Direct bacteriological examinations proved negative but *Erysipelothrix* (*Listeria*) *monocytogenes* was recovered from mice inoculated with sheep's brain suspension. Histological examination of the sheep's brain revealed organisms morphologically indistinguishable from *E. monocytogenes*. Intraocular inoculation of g. pigs proved negative. Treatment of affected sheep with penicillin, suphadiazine and neosalvarsan was of no avail. 66·5% of the flock and 4 out of 10 men who had been in contact with the outbreak gave positive titres in the blood agglutination test. The veterinary surgeon who attended the flock and carried out P.M. examinations had the highest titre, became seriously ill, but recovered after sulphonamide therapy.—M. GITTER.

SÁLYI, G. & HIRT, G. (1956). Listeriák okozta agyvelőgyulladás juhokban. **[Pathology of encephalitis in sheep caused by** *Erysipelothrix monocytogenes.***]**—*Mag. állator. Lapja.* **11,** 278-282. [In Hungarian. English and Russian summaries. Abst. from English summary.] **1664**

Meningo-encephalitis was observed in 52 sheep which had died from *E. monocytogenes* infection. In the blood vessels and leptomeninges infiltration was predominantly with mononuclear cells. Myelin degeneration and argyrophilia of the protoplasm of the nerve cells were observed. Mild regressive changes without infiltration were also seen. The most marked changes occurred in the medulla oblongata and pons Varolii.—T.E.G.R.

THAMM, H. (1957). Listeriose unter Rehwild. **[Listeriosis in deer.]**—*Zbl. Bakt. I. Orig.* **167,** 417-418. **1665**

After mortality had been reported in deer in Klietz, Eastern Germany, *Erysipelothrix* (*Listeria*) *monocytogenes,* Type 4b, was recovered from the liver of a carcass. This appears to be the first published report of listeriosis in wild ruminants.—M.G.G.

HELLMANN, E. & TÄUBRICH, F. (1957). Über eine Listeria-Infektion beim Chinchilla. **[Listeriosis in chinchilla.]**—*Tierärztl. Umsch.* **12,** 16-17. **1666**

Listeriosis is reported in a breeding pair of chinchillas imported from America. The female aborted and died. The male died a few days later. The P.M. findings are described. *Erysipelothrix* (*Listeria*) *monocytogenes* was isolated in pure culture from the heart blood and organs of the pair and from the foetuses. It belonged to serotype 4b, and reduced litmus milk and methylene blue milk. The disease did not spread to other chinchillas on the farm. It is considered that the pair became infected while in America.—M.G.G.

ROLLE, M. & MAYER, H. (1956). Zur Pathogenese der Listeriose. **[Pathogenesis of listeria infection.]**—*Zbl. Bakt. I.* (*Orig.*) **166,** 479-483. [English, French and Russian summaries.] **1667**

Subcutaneous infection of clinically healthy mice with *Erysipelothrix* (*Listeria*) *monocytogenes* succeeded only when massive doses of culture were used, whereas intraperitoneally, infection was always successful. *Escherichia coli* toxin in the intestine increased susceptibility to intestinal listeriosis. Inflammatory intestinal conditions brought about by sudden dietary changes rendered mice susceptible. Details were also given of P.M. examination of 72 chinchillas, 63 of which had enteritis. *E. monocytogenes* was present in brain and organs of 12 of the 63 and in three of those without enteritis.

—E.G.

SHIRLAW, J. F. (1957). **Some observations on bovine pasteurellosis in Kenya. I & II.** —*Brit. vet. J.* **113,** 35-46; 71-89. **1668**

A report on the history and incidence of bovine pasturella infection in Kenya. Bacteriological characteristics, viability and virulence of Kenya strains of *Past. boviseptica* were compared with strains from the National Collection of Type Cultures. *In vitro* the Kenya strains were generally resistant to a wide range of sulphonamides. Only sulphathiazole had a definite inhibitory effect; sulphamerazine, sulphadiazine and sulphadimidine showed a moderate activity in higher concentrations only.

A concentrated formolized vaccine, prepared from strains of high virulence and rich capsular content, conferred a high level immunity on cattle and laboratory animals. Chick embryo vaccine, aggressin, immune serum, filtrate of broth culture and saponin vaccine proved of little or no value. A high degree of immunity was obtained with a vaccine prepared from a rough, avirulent Kenya strain

of *Past. boviseptica*, but it was not possible to maintain the rough characters through successive subcultures. Preliminary experiments indicated that such a vaccine would be of value in protecting cattle against the infection.

—F. K. LEEB.

KNAPP, W. & STEVER, W. (1956). Untersuchungen über den Nachweis komplementbindender und agglutinierender Antikörper gegen Pasteurella pseudotuberculosis in Sera infizierter und immunisierter Menschen und Tiere. **[Complement-fixing and agglutinating antibodies against *Past. pseudotuberculosis* in sera from infected human beings and animals.]**—*Z. ImmunForsch.* **113,** 370-374. **1669**

From examinations of serum from a human case of pseudotuberculosis and from experimentally infected rabbits, it was concluded that the agglutination test was to be preferred to the complement-fixation test for diagnostic purpose, because the latter often gave false negative results. The c.f. test was specific and reliable for the examination of hyperimmune sera and for typing of the organism.—R.M.

ROBERTS, D. S. (1956). **A new pathogen from a ewe with mastitis.**—*Aust. vet. J.* **32,** 330-332. [Author's summary copied *verbatim.*] **1670**

A small Gram-negative bacterium, which has not apparently been described elsewhere, was isolated from the udder of a ewe with severe mastitis. Introduction of a culture into the udders of two dry ewes produced acute mastitis in both cases. Because of the special methods needed in isolating the organism, it is contended that the disease may have occurred on other occasions and been wrongly diagnosed, possibly as staphylococcal mastitis. The organism seems to belong in the tribe *Haemophileae*. The name *Histophilus ovis* is suggested.

HENRY, R. T. & BLACKBURN, E. G. (1957). **Treatment of calf enteritis with nifuraldezone compound.**—*Vet. Med.* **52,** 122-124 & 126. [Authors' summary modified.] **1671**

Recent studies with the synthetic nitrofurans indicate that nifuraldezone, a new member of this group may have exceptional value in the treatment of bovine enteritis. It was given (in the form of "Entefur" tablets each containing 1 g. of the drug with 260 mg. bismuth subsalicylate) to a group of unweaned calves in various stages of white scours. Dosage was one tablet twice daily for about 4 days. The treated group was selected at random and kept together with an untreated control group in an unheated open pen in a barn. Some of the calves were fed milk substitute by pail and others were suckled by nurse cows. Treatment appeared to have been the only factor modifying significantly the course and outcome of the disease. Of the 63 treated calves only 3 died, as compared with 21 of the 24 untreated controls.

I. SOJKA, W. J., ERSKINE, R. G. & LLOYD, M. K. (1957). **Haemolytic *Escherichia coli* and "oedema disease" of pigs.**—*Vet. Rec.* **69,** 293-301. **1672**

II. ERSKINE, R. G., SOJKA, W. J. & LLOYD, M. K. (1957). **The experimental reproduction of a syndrome indistinguishable from oedema disease.**—*Ibid.* 301-303. [Authors' summaries copied *verbatim.*] **1673**

I. Evidence is presented that specific sero-types of haemolytic *E. coli* are associated with "oedema disease." These sero-types appear to be non-invasive and are not common in pigs except in association with "oedema disease." On the basis of evidence presented it seems likely that "oedema disease" is an entero-toxaemia, the "toxin" being produced by these organisms.

II. It has been found possible to produce in 13 pigs a condition indistinguishable from "oedema disease" in respect of the clinical signs and postmortem lesions by the intravenous injection of an extract of one serotype of haemolytic *E. coli* isolated from a field outbreak of "oedema disease." Extracts of other serotypes of haemolytic *E. coli* isolated from field outbreaks of "oedema disease" have also been found to produce this condition, whereas it was not found possible to produce it by the intravenous injection of a similarly prepared extract of haemolytic *E. coli* from a disease condition of pigs other than "oedema disease."

GEURDEN, L. M. G., DEVOS, A. & VAN DEN WYNGAERT, M. (1956). Enkele onderzoekingen in verband met pathogene coli's. **[Studies of pathogenic strains of *Escherichia coli.*]**—*Vlaam. diergeneesk. Tijdschr.* **25,** 207-217. [In Flemish. English, French and German summaries. English summary modified.] **1674**

The authors discussed the pathogenic role and the antigenic structure of *E. coli*. They isolated 73 strains from diseased foals, calves, pigs, dogs, cats and fowls. None belonged to the $O_{111}B_4$ group and only low agglutination titres were obtained with O_{25} antiserum. Strains belonging to groups O_{86} and $O_{26}B_6$ were found

only in poultry, and those belonging to group $O_{55}B_5$ only in dogs, cats and pigs. Most of the strains recovered from dogs and cats were haemolytic. A large number of klebsiella was also isolated, whose pathogenic role is to be investigated.

THOMSON, S. (1956). **Is infantile gastro-enteritis fundamentally a milk-borne infection?**—*J. Hyg., Camb.* **54,** 311-314. **1675**

O groups of *Escherichia coli* are now considered to be the main cause of summer diarrhoea and infantile gastro-enteritis. One per cent. of samples of farm milk were found to contain pathogenic varieties of O groups of *E. coli;* the disease must therefore be regarded as a milk borne infection. *E. coli* of the O groups could not be detected in faeces from 200 cows and 50 horses, but 36 out of 270 samples of faeces from fowls yielded *E. coli* of these O groups. The pathogenicity of these organisms requires further investigation.

—J. A. NICHOLSON.

LIBERMAN, S. & JOHNSON, M. J. (1956). **Penicillinase of *Escherichia coli* and its relation to a penicillin-binding component.**—*J. Bact.* **72,** 831-833. [Authors' summary slightly modified.] **1676**

The effect of penicillin concentration on the rate of penicillin destruction by the intracellular penicillinase of *E. coli* has been investigated. It was found that, while an extracellular penicillin conc. of 45 units per ml. inhibited cell division, the rate of penicillin destruction reached half its maximal value at 410 units per ml. It was concluded that the cell component causing penicillin destruction was not identical with the component, essential for normal growth, which is inactivated by penicillin.

WORCESTER, W. W. & COLLINSON, R. W. (1956). **A report of *Salmonella typhimurium* as the probable cause of diarrhea and milk depression in cattle.**—*Calif. Vet.* **9,** 36. **1677**

Severe digestive disturbance and a sharp fall in milk yield were observed in a herd of 76 dairy cattle. *S. typhi-murium* was isolated from the internal organs of a heifer and from a sample of faeces. Two weeks later, when the disorder had subsided after treatment with procaine penicillin and sulphonamides, 4 out of 7 faecal samples yielded the organism and most of the blood samples from 34 cows were positive to the agglutination test for *S. typhi-murium* infection.—M.G.G.

BOYD, J. S. K. & BIDWELL, D. E. (1957). **The type A phages of *Salmonella typhi-murium*: identification by a standardized cross-immunity test.**—*J. gen. Microbiol.* **16,** 217-228. [Authors' summary slightly modified.] **1678**

The identification of the type A phages of *S. typhi-murium* was hitherto based on antigenic structure, host range, and plaque characters. The discovery of an apparently phage-free strain of *S. typhi-murium,* equally sensitive to all these phages, enabled the preparation of standardized lysogenic bacteria, alike in all respects except in the symbiotic phage (prophage) they carry. With these it was possible to test cross-immunity with a high degree of accuracy. The immunity pattern of a collection of 598 type A phages was examined, and subdivisions in the original types were revealed. Twelve types are now identified. The test is described and the significance of the findings discussed.

MCERLEAN, B. A. (1956). *Salmonella dublin* **infection in a litter of week-old piglets.**—*Irish vet. J.* **10,** 229-230. **1679**

Twelve piglets in a litter of 16 died within 7 days after birth. The sow, which had successfully reared 4 previous litters, remained in normal health. P.M. examination of a piglet that died revealed a greatly enlarged spleen. *S. dublin* was isolated in pure culture from the heart blood, spleen and brain.—M.G.G.

MULÈ, F., GARUFI, L. & BARCAROLI, F. (1956). Azione dell'idrocortisone *in vitro* sullo sviluppo della Salmonella tifica. [*In vitro* **action of hydrocortisone on the growth of** *S. typhi.*]—*Bol. Ist. sieroter., Milano.* **35,** 267-271. [English summary.] **1680**

In low conc. (below 25 mg./ml.) hydrocortisone favoured growth of the organism by stimulating O_2 consumption, and in high conc. (100 mg./ml.) it had the opposite effect.

—T.E.G.R.

LUCAS, F. R. (1956). **Use of furazolidone in a field outbreak of salmonellosis in mallard ducks.**—*J. Amer. vet. med. Ass.* **129,** 529-531. **1681**

Of 16,000 mallard ducklings hatched in incubators on a wild-fowl breeding establishment, about 2,000 died from *Salmonella* infection. *S. anatum* and *S. typhi-murium* were recovered from the organs of infected ducklings. Of 580 laying birds 10% were positive in blood agglutination tests for *Salmonella* infections. The outbreak was controlled by 0·011% furazolidone in the mash. Oral administration of 100 mg. of the drug daily to 2 lb. ducks produced toxic symptoms in the form of excitement.—M.G.G.

ANON. (1956). **Report of the Antigen Committee.** —*Proc. 28th Ann. Meet. N. E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 7 pp. **1682**

Information collected from the various States regarding the behaviour of the conference antigen strains is given in tabular form. Subcultures of the 3 conference strains were received from 12 States and, on being subjected to laboratory tests, revealed no striking differences except for some roughness in the case of one strain. Variant pullorum infection was reported from 3 States; organisms isolated in 44 other States were not typed. It is considered that the appreciable number of fowl typhoid and other salmonella infections may be significant especially in the case of chickens. Except for a few minor differences the antigens tested were uniform in the turbidities and agglutination was satisfactory.—T.E.G.R.

SMITH, H. WILLIAMS & CHUBB, L. G. (1957). **The effect of feeding different levels of protein concentrates on the susceptibility of chickens to *Salmonella gallinarum* infection.**—*J. comp. Path.* **67,** 10-20. [Authors' conclusions modified.] **1683**

The results of feeding chickens diets of ground wheat containing different amounts of fish meal for 3 weeks before infection indicated that the diet which produced the greatest resistance to *S. gallinarum* infection was one of ground wheat plus 2½% fish meal. The absence of fish meal, or its addition at higher levels (10 and 40%), had an adverse effect on the course of the disease. A high level of decorticated groundnut meal (50%) had a similar effect. Changing the diet from one of ground wheat containing high levels of fish meal to one composed only of ground wheat at or preferably 3 days before infection had a beneficial influence. This was not true of dietary changes in the reverse direction. Fasting chickens for 48 hours before infection had no observable effect when infection was produced parenterally. When produced orally, however, the disease was somewhat more severe in chickens fasted for 48 hours than in those fasted for shorter periods.

SIEBURTH, J. McN. & JOHNSON, E. P. (1956). **Observations on stress factors and serological response in *Salmonella typhi-murium* infection of chicks.**—*Proc. 28th Ann. Meet. N. E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 6 pp. [Authors' conclusions slightly modified.] **1684**

Orally administered *S. typhi-murium* appears to be very pathogenic for the day-old chick, 100% infection arising from $10^{2\cdot0}$ and 50% mortality from $10^{3\cdot5}$ viable organisms per chick. Concurrent infections appear capable of both aggravating (bluecomb agent) and alleviating (Crawley's agent) *S. typhi-murium* infection of chicks. Although nitrofurazolidone (NF-180) did not appreciably reduce the incidence of liver or intestinal infection, serological response was apparently prevented. The widespread use of NF-180 may be of importance in evaluating serological testing. The indirect haemagglutination test which has been developed, not only detects a serological response earlier than the agglutination test but gives a titre 2–5 times greater. Chicken r.b.c., modified by 4 *Salmonella* serotypes (group specific but not species specific), gave polyvalent indirect haemagglutination titres in good agreement with the species specific indirect haemagglutination test. The polyvalent indirect haemagglutination test may be of value as a screening test for the detection of *Salmonella* infections of fowls.

BÜHLMANN, X. (1956). Die Brauchbarkeit von Intrakutanproben für die Diagnose der Rinderbrucellose. **[Use of the intradermal test for the diagnosis of bovine brucellosis.]** —*Schweiz. Arch. Tierheilk.* **98,** 559-564. [English, French and Italian summaries.] **1685**

Intradermal tests carried out with the brucellins "Berna" (Swiss material) and "Peba" (Danish material) in cattle vaccinated with *Br. abortus* Strain 19 vaccine, and in infected animals showed the allergic test to be inferior to the conventional serological and bacteriological tests for diagnosis.—F. K. LEEB.

GOURDON, R., QUINCHON, C., GUILLO, B. & DE LABONNEFON, G. (1957). Intérêt du test de Coombs dans le diagnostic de la brucellose bovine. **[Coombs test in the diagnosis of bovine brucellosis.]**—*Ann. Inst. Pasteur.* **92,** 429-432. [Abst. from English summary.] **1686**

The Coombs test is a sensitive method for sero-diagnosis of bovine brucellosis. It seems sensitive enough to specific antibodies both early in infection when the serum contains only incomplete antibodies and later when the agglutinin titre has dropped and usual sero-agglutinations remain negative.

The technique is too long and complex for use as a routine method of diagnosis.

STILES, F. C., WHITE, T. G. & ROEPKE, M. H. (1956). **A differential serum agglutination test to distinguish between specific and non-specific agglutination reactions for** *Brucella. World Hlth. Org. Exp. Adv. Panel on Brucellosis.* No. WHO/Bruc/116. pp. 7. **1687**

An account of a preliminary field trial of a test for detecting non-specific brucella agglutinins, based on the use in the plate test of acidified antigen, which according to Hess [*V.B.* **24**, 2253] inhibits non-specific agglutination. It was always used in combination with plate tests with ordinary antigen. The number of negative reactions to acid antigen increased with increasing acidity of the antigen. The recommended pH was 3·6–3·7, made up by adding 0·12 ml. conc. (85%) lactic acid to 2 ml. standard plate antigen. For the test, one drop of this antigen was added to 0·08 ml. of serum. Although 1,095 unvaccinated and 302 vaccinated cattle, suspected of being infected, were tested and retested after 2–4 months, the results of the acid-antigen test were conflicting, and further study of the test and and its interpretation appears to be required.—R.M.

NIŽNÁNSKY, F., KRČMÉRY, V. & OFÚKANÝ, L. (1956). Die Bereitung, Auswertung und praktische Verwendbarkeit von Brucella-Polysacchariden in der komplexen Diagnostik der Brucellose in der Praxis. **[Preparation, evaluation and practical application of brucella polysaccharides in the diagnosis of brucellosis.]**—*Arch. exp. VetMed.* **10**, 429-441. **1688**

The authors, working at the Bratislava Veterinary Institute, prepared a polysaccharide allergen ("Ps-I") from brucella endotoxin as described by Mosimann [*V.B.* **22**, 343], and another ("Ps-II") by formamide extraction as described for streptococci by Fuller [*V.B.* **8**, p. 742]. These were compared with the "F" allergen described by Kolář (1953) in *Veterinářství* **3**, 163. When one or other of these allergens was used in the intradermal test, in combination with the agglutination or milk ring tests, for the diagnosis of brucellosis in 1,672 cattle and 1,323 pigs, the accuracy of the i/d test was stated to be good. The preparation of "Ps-I" was relatively complicated and lengthy, while the value of "Ps-II" had yet to be confirmed by further tests. Preparation of polysaccharide antigens has not yet been standardized. [See also *V.B.* **26**, 2805.]—R.M.

COID, C. R. & VAUGHAN, L. C. (1957). **Incidence of carpal hygromas in dairy cattle infected with** *Br. abortus* **and maintained in an isolation compound.**—*J. comp. Path.* **67**, 53-56. [Authors' conclusions modified.] **1689**

The incidence of carpal hygromas in cattle infected experimentally with *Br. abortus* was not significantly higher than in control, uninfected cattle. The incidence was as high in cattle vaccinated one or more times with Strain 19 as in unvaccinated cattle. Hygromas were as common in cattle which were resistant to *Br. abortus,* as judged by failure to recover the organism at parturition, as in susceptible animals.

HOLLISTER, C. J. (1956). **Anamnestic reactions in brucella vaccinated cattle.**—*Vet. Ext. Quart. Univ. Pa.* No. 144. pp. 31-35. **1690**

A herd of 283 cows, which had been vaccinated between the ages of 6 and 8 months against brucellosis, were given a mixed vaccine composed of pasteurella, a corynebacterium, streptococci and staphylococci. The herd had been declared free from brucellosis 6 weeks previously. 22 days after vaccination 21% of the animals gave positive reactions and 14% gave doubtful reactions in blood agglutination tests for brucellosis. 77 days after vaccination 14 reactors were retested; 13 were negative and one was doubtful. 90 days after vaccination the whole herd was retested—with negative results. Attempts to reproduce the phenomenon under controlled conditions were unsatisfactory. It is suggested that cattle should not be tested for brucellosis for at least 60 days after the injection of serum or vaccines.—M.G.G.

PITZSCHKE, H. (1957). Serologische Untersuchungen bei einer ungeklärten Brucellen-Infektion in zwei Schweinebeständen Thüringens. **[Serological examination for brucellosis in two piggeries in Thuringia.]**—*Berl. Münch. tierärztl. Wschr.* **70**, 7-9 [English summary.] **1691**

Brucellosis was diagnosed serologically in 2 herds of pigs. Fertility had declined recently and 3 sows had aborted. Otherwise the animals appeared in good health. On one farm the cattle had chronic *Br. abortus* infection. Culture and g. pig inoculation of blood and organ and lymph node material from positive animals were negative. Serological tests were carried out on 32 pigs over a period of 6 months. The c.f. test was more sensitive than the slow agglutination test. It confirmed all the positive results of the slow agglutination test and continued to be positive for many of the pigs that ceased to react to the slow agglutination test.—M.G.G.

PAYNE, J. M. (1957). **Changes in the rat placenta and foetus following experimental infection with** *Brucella abortus*.—*J. Path. Bact.* **73,** 141-154. [Author's summary modified.] **1692**

Intraperitoneal injection of *Br. abortus* into pregnant rats gives rise to placental and foetal lesions. Initially the maternal sinuses of the placenta become congested with blood, some of which spills over into the uterine lumen to appear as a haemorrhagic discharge in the vagina. Later this congestion subsides, leaving areas of necrosis in the junctional zone and at the periphery of the placental labyrinth which appear to be due to vascular obstruction. The second stage of the inflammation begins at 3–4 days after infection. Polymorphs first accumulate at the junction between the maternal and foetal tissues. Eventually lesions extend into the labyrinth either directly or by the areas of necrosis associated with the localization of small groups of organisms. Polymorphs invade the part and a small discrete abscess or pustule-like lesion is formed. The placenta shows no sign of laying down a capsule of reticulin or collagen fibres around the focus of suppuration.

The foetuses associated with infected placentae occasionally die as a result of the initial congestion, but many survive until the 17–18th day of pregnancy only to become oedematous and die. From this stage of congestion until term, weight-gains are subnormal and glycogen fails to accumulate.

I. RENOUX, G., ALTON, G., AMARASINGHE, A. & SACQUET, E. (1956). Etudes sur la brucellose ovine et caprine. VII. Présence et répartition de *Br. melitensis* dans les tissus et les organes de caprins artificiellement infectés. **[Studies on ovine and caprine brucellosis. VII. Distribution of** *Brucella melitensis* **in artificially infected goats.]**—*Arch. Inst. Pasteur Tunis.* **33,** 397-402. **1693**

II. RENOUX, G., ALTON, G. & MAHAFFEY, L.-W. (1956). VIII. Présence et répartition de *Br. melitensis* dans les organes et tissus de brebis artificiellement infectées. **[VIII. Distribution of** *Brucella melitensis* **in artificially infected sheep.]**—*Ibid.* 403-407. **1694**

III. RENOUX, G., ALTON, G., AMARASINGHE, A. & SACQUET, E. (1956). IX. Excrétion vaginale de *Br. melitensis* chez les chèvres artificiellement infectées. **[IX. Vaginal excretion of** *Brucella melitensis* **in artificially infected goats.]**—*Ibid.* 409-412. **1695**

IV. RENOUX, G., ALTON, G. & SACQUET, E. (1956). X. Elimination de *Br. melitensis* par le lait de chèvres suédoises artificiellement infectées. **[X. Excretion of** *Brucella melitensis* **in the milk of artificially infected goats.]**—*Ibid.* 413-420. **1696**

I. Of 136 goats inoculated intraconjunctivally in the left eye with various doses of *Br. melitensis* and slaughtered 30–50 days later, 98 were found infected at P.M. examination. All those receiving 2×10^5 or more organisms became infected. The frequency with which the organism was recovered from 29 different sites was recorded.

II. In a similar experiment involving 84 sheep, 54 became infected. No dosage rate (maximum $1{\cdot}2 \times 10^9$) succeeded in infecting all sheep in the respective dosage groups. The relative frequency with which the organism was recovered from the various organs was closely similar to that occurring in the goat, but each organ was less frequently infected. Thus the spleen was positive in only half the sheep as compared with 72% of goats, and the ovary, bone marrow, mesenteric lymph node and left eye were consistently negative.

III. From the time of inoculation of the goats (see I above) about three weeks elapsed before the organism appeared in the vaginal mucus. Excretion was usually intermittent; it probably lasts longer than the classically accepted three weeks. *Br. melitensis* was recovered from the vagina in 33 out of 90 infected goats, including 7 out of 9 in which parturition occurred subsequent to their being infected and 5 out of 18 which had kidded before being infected.

IV. *Br. melitensis* was recovered from the milk of 34 out of 58 experimentally infected goats, but not until about three weeks had elapsed after infection. Parturition, whether occurring before or after infection, had no effect on the incidence of the organism in the milk. The organism was not found in any sample of milk which had proved negative to the stained antigen test. Cultures from the sediment of centrifuged samples were more frequently positive than cultures from the cream.

—H. SCOTT MCTAGGART.

ARSHAKUNI, G. A. (1955). **[Role of ixodid ticks in the transmission of brucellosis in sheep.]**—*Trud. armyan. nauchno-issled. vet. Inst.* **8,** pp. 39-44. [In Russian.] **1697**

It was experimentally demonstrated that brucellosis was transmitted from sheep to sheep by adult *Ornithodoros lahorensis* and *Derma-*

centor marginatus, but not by nymphs or larvae of these species, nor by *Rhipicephalus bursa* or *Hyalomma* ticks.—R.M.

GUDOSHNIK, A. N. (1955). **[Study of the rôle of ixodid ticks in the circulation of the causal agent of brucellosis.]** In "Natural foci of human diseases and regional epidemiology". Leningrad: Medgiz. [In Russian.] [Abst. in *Rev. appl. Ent.* Ser. B. **44**, 149. (1956), slightly modified.] **1698**

The experiments described were carried out in western Siberia in several old active foci of brucellosis and on farms from which the disease had been eliminated. *Dermacentor marginatus* and *D. pictus* represented 93·5% and 6·5% of 4,552 ticks collected on domestic animals, chiefly infected and healthy cattle and sheep in May in 1952 and 1953, and 30% and 70% of over 200 collected by drags on pastures in the early spring of 1953. No *Brucella* could be cultured from suspensions of these ticks, but they transmitted *Br. melitensis* to some of the g. pigs on which they were fed in batches of 10–50. Four such transmissions were obtained with *D. marginatus* and one with *D. pictus*. In another test, adults of *D. marginatus* were allowed to feed for 8 hours on g. pigs infected with *Br. melitensis*, kept for 6 days at room temp. and then placed on a healthy ram and left for 8 days. The ram gave a positive agglutination test 3 months later, and *Brucella* was isolated from it. *D. marginatus* retained *Br. melitensis* throughout its cycle of development, infection being demonstrated in eggs, larvae, nymphs and adults that were the progeny of the adult females collected.

BRYAN, H. S. (1957). **Studies on leptospirosis in domestic animals. VII. A rapid plate agglutination test for *Leptospira pomona*.**—*Vet. Med.* **52**, 111-114. [Author's summary modified.] **1699**

A rapid plate test, using *L. pomona* antigen stained with Giemsa stain, was described. 15,092 serum specimens from animals on 2,244 farms in Illinois were tested for *L. pomona* antibodies with both the rapid plate test and the agglutination-lysis test. The rapid plate test readily detected sera which on the agglutination-lysis test had been classified as having a titre of 1:100 or higher. Sensitivity tests indicated that the stained antigens remained stable for 6 months. Because of its simplicity, the rapid plate test with the stained antigen was better than the agglutination-lysis test in the diagnosis of leptospirosis.

OKAZAKI, W. & RINGEN, L. M. (1957). **Some effects of various environmental conditions on the survival of *Leptospira pomona*.**—*Amer. J. vet. Res.* **18**, 219-223. **1700**

The survival of *L. pomona* outside the animal body depends on various external factors, including temperature, pH, moisture, soil constituents, and the presence of other micro-organisms. Temperature below 7° to 10°C. or above 34° to 36°C. and a pH below 6 and above 8·4 are detrimental to its survival. The organism is susceptible to both drying and slow freezing, and did not survive either procedure for more than half an hour and one and a half hours respectively. Under simulated natural conditions *L. pomona* survived for less than 7 days; the survival time was longer in stagnant pools than in moving water.—F. K. LEEB.

POWERS, T. E., BOHL, E. H. & FERGUSON, L. C. (1956). **Clinical studies on leptospirosis as a cause of abortion in swine.**—*J. Amer. vet. med. Ass.* **129**, 568-572. **1701**

The authors studied 7 herds of pigs in which abortions had occurred. All of the animals that aborted and most of the others that farrowed normal litters were positive to the agglutination-lysis test for *L. pomona*. No animal was positive for brucellosis. Gilts, that had aborted, subsequently farrowed normal litters. Numerous leptospires were observed in kidney material from a weak piglet killed 14 days after birth and in the urine of 4 aborting sows. *L. pomona* was isolated from the urine of 3 sows and from the blood, liver and kidney of a weak piglet killed 2 hours after birth. It is suggested that, abortion only occurs when infection takes place during pregnancy.—M.G.G.

BAKER, C. E., GALLIAN, M. J., PRICE, K. E. & WHITE, E. A. (1957). **Leptospirosis. I. Therapeutic studies on the eradication of renal carriers of porcine leptospirosis.**—*Vet. Med.* **52**, 103-107. [Authors' summary modified.] **1702**

Terramycin was administered for 7 days at 250, 500 and 1000 g. per ton of feed to groups of 4 pigs which were known carriers of *L. pomona*. The data revealed complete elimination of the carrier state in the 4 pigs on the 500 g./ton treatment and in 3 of the 4 on the 1000 g. level (urine free from leptospires 30 days after withdrawal of the drug); the urine of the fourth pig in the latter group was suspicious at 30 days but negative at 60 days. Statistical treatment of these results indicated that terramycin at 500 and 1000 g. per ton could be expected to eliminate the carrier state in 94 of

100 pigs infected with *L. pomona*. Preliminary results of field trials in progress indicate that terramycin, 500 g. per ton of feed for 14 days to infected pregnant sows, eliminated urinary excretion of leptospires and enhanced "livability", birth weight and rate of growth of the piglets. The completed results of the field trials are to be reported later.

I. BRYAN, H. S. (1957). **Studies on leptospirosis in domestic animals. VI: Vaccination of swine with *Leptospira pomona* bacterin.**—*Vet. Med.* **52,** 51-57. [Abst. from author's summary.] **1703**

II. BURNSTEIN, T., BRAMEL, R. G. & JENSEN, J. (1957). **Vaccination of swine with a *Leptospira pomona* bacterin.** — *Ibid.* 58-61. [Author's summary modified.] **1704**

I. A trial with two *L. pomona* vaccines is described. Thirty unmated Hampshire gilts were divided into 3 groups. Ten gilts were vaccinated with a commercial vaccine, 10 with an experimental vaccine, and 10 were unvaccinated. They were mated 3 weeks later. Challenge was by conjunctival sac instillation of virulent *L. pomona* during the mid-gestation period. Protection was measured largely by the outcome of gestation but rises in blood titre, leptospiruria and fever were also considered. Normal litters were farrowed by all the vaccinated animals, but by only 3 of the 7 control animals that became pregnant. Leptospiruria developed after challenge in 4 of the gilts given the commercial vaccine, in none given the experimental vaccine and in 9 of the controls. No vaccinated gilt but 3 controls developed fever.

II. A single injection of *L. pomona* vaccine, either s/c or i/m, produced serological responses in 37 pigs with agglutination-lysis titres ranging from 1:10 to 1:500. Fourteen vaccinated animals and 5 controls were challenged with virulent *L. pomona*. The pigs given vaccine exhibited no signs of leptospirosis, whereas a rise in temperature, leptospiraemia, leptospiruria, interstitial nephritis, and serological responses typical of active infection were noted in 4 of the controls.

GRABIŃSKI, J. (1956). Serologiczne oznaczenie typów leptospir u psów we Wrocławiu. [**Serological typing of leptospira in dogs in Wroclaw (Breslau)**].—*Weterynaria, Wroclaw.* **2,** 3-15. [In Polish. English and Russian summaries.] **1705**

Agglutination tests on 50 samples of serum from dogs clinically suspected of leptospirosis revealed that 33 were reactors: of these 19 were positive for *L. canicola*, 13 for *L. icterohaemorrhagiae* and one for *L. sejroe*. There was no evidence that age or sex affected susceptibility. —M. GITTER.

SWAIN, R. H. A. (1957). **The electron-microscopical anatomy of *Leptospira canicola*.**—*J. Path. Bact.* **73,** 155-158. [Author's summary slightly modified.] **1706**

Improved methods of fixation and preparation have been used for the morphological comparison of a freshly isolated strain of *L. canicola* with a standard strain of *L. icterohaemorrhagiae*. The species are closely similar; the structure of both comprises a spiral protoplast wound helically around a narrower straight axial filament, both of which are enclosed within a well-defined cell wall.

ANNEAR, D. I. (1956). **Preservation of leptospirae by drying.**—*J. Path. Bact.* **72,** 322-323. **1707**

L. canicola, L. icterohaemorrhagiae and *L. leeds* were grown on 20 ml. volumes of Korthof's medium at 30°C. for 5 days, centrifuged and resuspended in 1 ml. of Korthof's medium. Sterile frozen plugs of starch peptone were put in tubes inoculated with conc. leptospiral suspensions and exposed to vacuum and phosphoric oxide. The plug dissolved and formed a foaming viscous mass which dried rapidly. The tubes were then sealed *in vacuo*. Recovery from desiccates was also described.—E.G.

RUSSELL, C. M. (1956). **A "hemolysin" associated with leptospirae.**—*J. Immunol.* **77,** 405-409. [Author's summary modified.] **1708**

Of 11 species of *Leptospira*, 5 produced haemolysin for sheep r.b.c. *L. pomona* produced the greatest amount; smaller amounts were produced by *L. autumnalis, L. australis, L. canicola* and *L. grippo-typhosa*. *L. pomona* haemolysin was very active against sheep r.b.c., slightly so for human and rabbit r.b.c. and hardly at all for g. pig r.b.c. The haemolysin was heat labile but was not altered by repeated freezing and thawing. It was neutralized by antiserum from immunized rabbits. [See also *V.B.* **26,** 2211.]

AIKAT, B. K. & DIBLE, J. H. (1956). **The pathology of *Clostridium welchii* infection. I. Experimental observations *in vivo*.**—*J. Path. Bact.* **71,** 461-476. **1709**

This is a detailed study of the effects of *Cl. welchii* and of the individual and collective action of its very complex toxins. Using both *in vivo* and *in vitro* methods the authors exam-

ined the effects of the organism and of its toxins on the body. They used preparations of the toxins in which particular factors were available for action, others being rendered inactive or being otherwise absent.

In striated muscle the histological changes produced by the alpha-toxin alone, without collagenase, were indistinguishable from those produced by the virulent organism itself or the whole toxic filtrate and there was no demonstrable change attributable to a specific collagenase action.

Both cultures and toxins containing hyaluronidase caused a disappearance of the Schiff-positive material from endomysial connective tissue. The argyrophile reticular fibres at the same time became more prominent and there was wide separation of the endomysium from the sarcolemma. In the presence of *Cl. welchii* anti-hyaluronidase serum these changes were specifically inhibited. With the interference with the nutrition of the cells as a result of these changes the effects of the alpha-toxin would be accelerated.

The lecithinase of that toxin weakens the cell membrane by acting on the lipo-protein complexes and this may account for a fine fatty change that was present in the sarcolemma and in the sarcoplasm. The lecithinase may also act on the stromal lipo-protein or directly on the myosin.

The alpha-toxin probably affects the cell envelopes, causing breakdown of the fat cells so that fat is liberated. This toxin also has a lipolytic action on the fat. Fat embolism which so frequently complicates gas gangrene will be related to this action.

Gross ischaemia is not responsible for local lesions produced by *Cl. welchii* or its toxin. In the early stages thrombosis in the venules and the mechanical effects of oedema and gas formation, the effects of damage to the muscle rather than the cause, may contribute to vascular embarrassment which then develops.

Inflammatory changes resulting either from the culture or the different toxic components were variable. Inflammatory cellular infiltration with active dilatation of blood vessels and leucocytic emigration frequently occurred, usually more pronounced after the use of pure alpha-toxin than after live organisms or whole toxic filtrates, this reaction being independent of the presence of hyaluronidase or collagenase.

Fibrinolysins produced by the organism diminish the fibrin content of the oedema fluid. Some of the oedema fluid may be derived from intracellular fluid of muscle cells.—W.A.P.

RAMON, G. (1956). Résistance naturelle et immunité artificiellement acquise à l'égard de l'intoxication tétanique chez la poule. Passage de la toxine et de l'antitoxine tétaniques de la poule à l'oeuf et au poussin. **[Transmission of tetanus toxin and antitoxin from the hen to the chick through the egg.]**—*Bull. Off. int. Epiz.* **45,** 804-809. [In French.] **1710**

Tetanus toxin was demonstrated in the yolk of eggs laid from 2 to 14 days after the hens had received injections of the toxin. After 25 days antitoxin appeared in their eggs. Antitoxin was also demonstrated in the blood of the chicks, and in the same quantities that were found in the yolks.—M.G.G.

HÂKIOGLU, F. (1957). Erster Bericht über enzootisch verlaufenden Pferdebotulismus in der Türkei mit Scheinsymptomen einer Meningo-Encephalomyelitis. **[Endemic botulism of horses in Turkey with symptoms of meningo-encephalitis.]** — *Dtsch. tierärztl. Wschr.* **64,** 79-81. **1711**

Intoxication with the Type C toxin of *Cl. botulinum,* characterized by nervous symptoms, caused the death of 70 horses in a district of Turkey during 1954 and 1955: 6–8% of all horses in the district were affected. Diagnosis was confirmed by toxin-neutralization tests in mice.—R.M.

VIRAT, B., VALLÉE, A. & KRÉGUER, A. (1956). A propos du botulisme du mouton: Première souche ovine isolée en France. **[Isolation of *Clostridium botulinum* from a sheep.]**—*Bull. Acad. vét. Fr.* **29,** 425-426. **1712**

Cl. botulinum Type C was isolated from a sheep which had supplied blood for serological purposes for many years. This is the first report of an ovine strain from France.

—H. SCOTT MCTAGGART.

LAING, J. A. [Edited by.] (1956). **Vibrio fetus infection of cattle.**—*F.A.O. Agric. Studies* No. 32. pp. 51. **1713**

A general account of the disease, derived from papers read at the F.A.O. Symposium on Vibriosis held at Copenhagen in December, 1954. It gives the present position of knowledge about epidemiology, diagnosis, treatment and control of vibriosis, and the isolation and cultivation of *V. fetus*.—R.M.

ROBINSON, E. M., VAN RENSBURG, S. W. J., VAN HEERDEN, J. S. & VAN DRIMMELEN, G. C. (1956). **Isolation of Vibrio foetus from bull semen in South Africa.**—*J. S. Afr. vet.*

med. Ass. **27,** 197-200. [Authors' summary modified.] **1714**

V. fetus was isolated from bull semen by i/p injection of semen into pregnant g. pigs and culturing the foetal stomach contents after a few days. Some of the infected samples had been sent by rail (in ice) from 1000 miles away.

HUBRIG, T., WOHANKA, K. & GRÄNZ, G. (1956). Zur Frage der Erkennung Vibrio fetus-infizierter Deck- und Besamungsbullen. **[Demonstration of *V. fetus* in bulls.]**—*Berl. Münch. tierärztl. Wschr.* **69,** 479-483. [English summary.] **1715**

It was stated that the presence of *Proteus* and *Pseudomonas* in the prepuce of some bulls interfered with bacteriological diagnosis of *V. fetus* infection by cultivation from preputial washings. Vaginal mucus culture from test heifers three days after service was considered still the most exact method of diagnosis until a reliable selective culture medium is found.

—E.G.

HUBRIG, T. & RÖHR, E. (1956). Das charakteristische Wachstum von *Vibrio fetus* (des Rindes) auf Blutagar. **[Characteristic growth of *V. fetus* on blood agar.]**—*Zbl. Bakt. I.* **167,** 233-237. [English, French and Russian summaries.] **1716**

Vibrio fetus was isolated from bovine foetuses, foetal membranes, vaginal mucus, preputial washings and semen samples, using a blood-agar medium containing 20% defibrinated horse blood. The pH of the medium before sterilization was 7·8. Of 956 samples examined 174 contained catalase-positive (pathogenic) and 184 catalase-negative (non-pathogenic) strains. Cultures of pathogenic strains incubated on this medium for three days in an atmosphere containing about 20% CO_2, formed bluish-white colonies with a metallic sheen, whereas colonies of non-pathogenic vibrios were yellow to yellowish-green.—E.G.

MOWBRAY, S. (1957). **The antibacterial activity of chlorophyll.**—*Brit. med. J.* Feb. 2nd. 268-270. [Author's summary modified.] **1717**

Soluble sodium potassium copper chlorophyllin (which is the base of "chloresium" preparations) had a bacteriostatic effect on certain Gram-positive organisms, including *Staphylococcus aureus, Streptococcus pyogenes,* the pneumococcus, and the pathogenic clostridia. But after a period of inhibition, bacterial multiplication proceeded in the presence of all concentrations of chlorophyll tested. After repeated cultivation in the presence of chlorophyll *Staph. aureus* became resistant to its temporary bacteriostatic effect. The activity of some antibiotics was potentiated by sub-inhibitory concentrations of chlorophyll.

ROTMAN, B. (1956). **On the mechanism of sonic lysis of bacteria.**—*J. Bact.* **72,** 827-830. [Author's summary slightly modified.] **1718**

Bacterial suspensions (*Escherichia coli, Azotobacter vinelandii*) do not lyse under sonic vibrations when suspended in medium of low ionic strength or at low pH. After sonic treatment, lysis can be brought about by adding neutral buffer. Sonic vibrations are shown to cause structural damage to the cell but no leakage of intracellular material occurs under the conditions described. The nature of the lytic process following vibration is discussed in terms of enzymatic lysis or of dissolution of the cytoplasm.

STRAUB, M. & SCHWARZ, J. (1956). **Coccidioidomycotic thoracic lesions in dogs in Tucson, Arizona.**—*Arch. Path.* **62,** 479-488. **1719**

Lung lesions morphologically identical with those caused by *C. immitis* were found in 8 out of 34 apparently healthy stray dogs. This is a full account of the lesions, with 17 photomicrographs.—R.M.

SALVIN, S. B. (1956). **Acquired resistance in experimental histoplasmosis.**—*Trans. N.Y. Acad. Sci.* Ser. II. **18,** 462-468. **1720**

Injection of a cell wall fraction of the yeast phase of *Histoplasma capsulatum* engendered resistance in mice and g. pigs. Increased resistance also followed sublethal infection and developed more rapidly than the counteracting hyper-sensitivity. The nature of this immune mechanism is not quite clear though it is considered that humoral antibody does not play an important role.—T.E.G.R.

FORD, E. J. H. (1956). **Ringworm in cattle: an account of an outbreak.**—*Vet. Rec.* **68,** 803-806. **1721**

The outbreak was caused by *Trichophyton verrucosum* var. *discoides* and commenced during the summer. The rate of spread of infection from animal to animal, and the distribution of lesions on the body, were recorded. Although no cattle were left untreated as controls, treatment by the local application of an ointment containing phenyl mercuric acetate appeared to have little influence on the rate of recovery.

—R.M.

FREY, D. M. & DURIE, E. B. (1956). **The isolation of keratinophilic fungi, including *Microsporum gypseum*, from Australian soil.**—*Aust. J. exp. Biol. med. Sci.* **34**, 199-204. **1722**

Autoclaved human hair was exposed to soil samples collected from various parts of New South Wales. Amongst the fungi which grew on the hair were *Microsporum gypseum* and *Keratinomyces ajelloi*. *M. gypseum* can probably exist for long periods in soil, and retain its invasive powers. Keratinophilic fungi may play a major part in the destruction of keratinaceous debris in nature; causation of ringworm may be a minor and accidental role.

—R. I. SOMMERVILLE.

GEORG, L. K. (1956). **The role of animals as vectors of human fungus diseases.**—*Trans. N.Y. Acad. Sci.* Ser. II. **18**, 639-647. **1723**

A conventional account of fungus diseases transmissible from animals to man. There does not appear to be conclusive evidence that systemic or subcutaneous conditions are intertransmissible but cutaneous infections are, and they constitute an important public health problem. *Microsporum canis, M. gypseum, Trichophyton verrucosum, T. mentagrophytes* var. granular, *T. equinum* and *T. gallinae*, in relation to human infections, are discussed.—T.E.G.R.

OLESIUK, O. M. & VAN ROEKEL, H. (1956). **Egg transmission of the chronic respiratory disease agent. Preliminary report.**—*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 2 pp. [Mimeographed.] **1724**

Eggs from hens known to produce embryos and day-old chicks with lesions of chronic respiratory disease were incubated. The percentage of infertile eggs and dead germs was 16·9. Examination of embryos revealed that 4·2% of the "unpipped" eggs and 17·1% of the "pipped" eggs were positive for chronic respiratory disease. Of the chicks examined immediately after hatching 7·5% were positive. Chicks from 6 different batches were divided into 2 groups of which one was artificially infected with infectious bronchitis virus and the other, untreated, was kept as control. Symptoms and gross lesions of chronic respiratory disease were produced among infected birds but not among controls. A similar study, the results of which are given in tabular form, was carried out on batches from hens giving a positive reaction with the PPLO serum plate antigen.—T.E.G.R.

ALSTRÖM, I. (1955). Filtrerbar pleomorf penicillin- och pasteuriseringsresistent mikroorganism påvisad i mjölk. **[Filtrable pleomorphic organisms resistant to antibiotics and pasteurization, isolated from milk.]**—*Nord. hyg. Tidskr.* **36**, 230-232. [In Swedish. Abst. from English summary.] **1725**

Milk from dairy herds affected with chronic mastitis was sampled and investigated. A coccoid pleomorphic filtrable organism was isolated both from diseased and from clinically healthy cows; it was resistant to pasteurization and to antibiotics. The isolate was compared with the organism of bovine contagious pleuropneumonia and with two strains of pleuropneumonia-like organisms from the genital organs of cattle. There were some morphological similarities but in other respects there were differences which indicated that this organism might be a member of the pleuropneumonia group which had not been previously described. The organism had not been isolated from herds free from clinical mastitis.

ROBINSON, L. B., WICHELHAUSEN, R. H. & ROIZMAN, B. (1956). **Contamination of human cell cultures by pleuropneumonialike organisms.**—*Science.* **124**, 1147. **1726**

A warning that tissue cultures or the components of tissue culture media may become accidentally infected with pleuropneumonia-like organisms. Contamination was not visible to the naked eye, but was revealed by cultivation of culture fluid on a suitable medium.—R.M.

DOETSCH, R. N., HOWARD, B. H., MANN, S. O. & OXFORD, A. E. (1957). **Physiological factors in the production of an iodophilic polysaccharide from pentose by a sheep rumen bacterium.**—*J. gen. Microbiol.* **16**, 156-168. [Authors' summary copied *verbatim*.] **1727**

A Gram-negative, non-flagellated, asporogenous, anaerobic, iodophilic, curved rod ($2{\cdot}5\mu \times 0{\cdot}5\mu$) was isolated from the rumen of a sheep and designated *Bacteroides amylogenes* n. sp. This organism transforms a number of carbohydrates including pentoses to intracellular iodophilic polysaccharide which has been isolated and shown to be a polymer of glucose. Resting suspensions of this organism utilize this iodophilic material as a reserve substance under a variety of conditions. *Bacteroides amylogenes* grows optimally *in vitro* when bicarbonate and rumen liquor are included in the medium. On physiological and morphological grounds it is

considered to be an authentic rumen bacterium. The chief fermentation product from xylose is butyric acid.

BROBERG, G. (1957). **Oxygen's significance for the ruminal flora as illustrated by measuring the redox potential in rumen contents. A provisional announcement.**—*Nord. VetMed.* **9,** 57-60. [In English. German & Swedish summaries. English summary slightly modified.] **1728**

B. showed that O_2 added to rumen content *in vitro* as well as *in vivo* is rapidly consumed by the rumen microorganisms. It is probable that facultative anaerobic microorganisms may be of importance!

See also absts. **1939** (report, Ministry of Agriculture, Great Britain); **1940** (report, Northern Ireland); **1942-1943** (reports, U.S.A.).

DISEASES CAUSED BY PROTOZOAN PARASITES

LEIDL, W. & MAHRLA, A. (1956). Das Verhalten von Trichomonas foetus bei der Tiefkühlung. **[Behaviour of *Tr. foetus* in deep-frozen cultures.]**—*Fortpflanzung.* **6,** 141-143. **1729**

The authors stated that about −48°C. was the "critical" temperature for the survival of deep-frozen *Trichomonas foetus* in media containing glycerol. When between −40° and −50°C. the temperature was lowered gradually at a rate of 1°C./min., the survival ratio was high. When, however, during that period temperature was reduced rapidly, mortality was nearly 100%. [See also *V.B.* **25,** 629 & 1632 **26,** 3757.]—E.G.

MELIKYAN, E. L. (1955) **[Coccidiosis of sheep and goats in the Armenian S.S.R.]**—*Trud. armyan. nauchno-issled. vet. Inst.* **8,** pp. 83-91. [In Russian.] **1730**

It was estimated that, in Armenia, 51–100% of sheep and 34–100% of goats were infected with coccidia. Infection was greatest during March, April and May, when the animals were on heavily-infected pastures near the villages. The body weight of adult infected sheep was 24% less than that of healthy sheep; in lambs the body wt. was reduced by 15% and in kids by 47%. Wool production by infected flocks was reduced by 29%. The average milk yield of infected ewes was 63% less than that of healthy ewes.—R.M.

BUDNIK, V. S. (1955). **[Observations on the transmission of *Nuttalia equi* by *Dermacentor marginatus*.]**—*Veterinariya, Moscow.* **32,** No. 8. pp. 36-43. [In Russian.] **1731**

The eggs of some, but not all, female *D. marginatus* which had fed on infected horses, contained *Nuttallia* (*Babesia*) *equi*. First and second generations of ticks were reared from infected eggs and were placed on susceptible horses. The experiments revealed that transovarial migration of *N. equi* was a rare phenomenon, of no importance in the spread of the disease. Male ticks were the commonest source of infection, and not merely by mechanical transmission, because the protozoa lived for up to 27 days in them. The importance of male ticks in the spread of infection is increased by their habit of passing from one horse to another in search of female ticks.—R.M.

LI, P. N. (1956). **[Simplified method for the diagnosis of *Babesia ovis* in the tick *Rhipicephalus bursa*.]**—*Veterinariya, Moscow.* **33,** No. 5. pp. 70-71. [In Russian.] **1732**

The method consisted of preparing smears of the ovary of female ticks, fixed with alcohol-ether and stained with Romanovsky stain. With each specimen 200 microscopic fields were examined for clavate forms of piroplasms. Such forms outnumbered other forms of piroplasms by 30 to 1 on the 4th day of feeding of the tick, or 2 to 1 on the 12th day of feeding. On 2 farms about 25% of *Rh. bursa* were considered to be infected. [See also *V.B.* **26,** 2578.]—R.M.

MARUTYAN, E. M. (1955). **[*Theileria annulata* infection in buffaloes.]**—*Trud. armyan. nauchno-issled. vet. Inst.* **8,** pp. 77-81. [In Russian.] **1733**

Buffaloes were susceptible to natural or experimental infection with *Th. annulata*. It was shown that the parasite could be transmitted by *Hyalomma detritum* and *H. anatolicum*. In Armenia the infection was either acute or latent —the latter was the commonest form. Clinical symptoms and lesions were less pronounced than in cattle. Lesions were found in the lymph nodes, spleen, thymus, bone marrow, liver, heart, and sometimes in the abomasum.—R.M.

GATES, D. W., ROBY, T. O. & MOTT, L. O. (1956). **Studies on the specificity of the complement-fixation test for anaplasmosis.**—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 89-97. **1734**

Five cattle, carriers of *Anaplasma marginale* infection, reacted to the c.f. test for anaplasmosis but were negative to agglutination tests for *Brucella abortus* infection. Four cattle with

brucellosis, 6 with vibriosis and 2 with vesicular stomatitis were all negative for anaplasmosis.

Of 204 healthy cattle previously vaccinated with Strain 19 of *Br. abortus,* 202 were negative, 1 was doubtful and 1 positive for anaplasmosis. The positive animal was pregnant, and was negative in later tests. Splenectomized calves inoculated with its blood remained normal. All of 122 healthy cattle gave a negative reaction to the c.f. test for anaplasmosis, and of a further 72 cattle which were tested several times before and after splenectomy, 6 gave a single false positive reaction after splenectomy. Control antigen prepared from the blood of uninfected cattle did not react with the sera of cattle experimentally infected with anaplasmosis.—M.G.G.

FALLIS, A. M., ANDERSON, R. C. & BENNETT, G. F. (1956). **Further observations on the transmission and development of** *Leucocytozoon simondi*.—*Canad. J. Zool.* **34,** 389-404. **1735**

L. simondi is believed to be transmitted to ducks in Algonquin Park by ornithophilic black flies of *Eusimulium* spp. in late May and by *Simulium rugglesi* in the latter part of June. The spleen of experimental ducklings showed little enlargement up to 6 days after exposure, but maximum splenomegaly occurred after 10 to 14 days, possibly because of numerous megaloschizonts. The peak parasitaemia also occurred then. In *S. rugglesi,* oocysts occurred in and on the stomach wall, and the salivary glands contained sporozoites. Sporogony may be completed in 3 or 4 days.

—G. K. SWEATMAN.

GOODWIN, L. G. (1956). **Discussion on synergy in chemotherapy. Sulphonamides and folic acid antagonists in malaria and toxoplasmosis.** —*Proc. R. Soc. Med.* **49,** 871-873. **1736**

If sulphonamide and pyrimethamine are given together to an animal infected with malaria, the effect is much greater than with either drug alone. The substances potentiate each other, because they block different parts of the same metabolic pathway. Although this action has been known for some years it has yet to be used in the treatment of human malaria. The drugs also display a potentiating effect in the treatment of toxoplasmosis.—D. POYNTER.

MOIR, R. J. & SOMERS, M. (1956). **A factor influencing the protozoal population in sheep.** —*Nature, Lond.* **178,** 1472. **1737**

A 700 g. daily ration of roughage and sheep cubes was fed in different ways to five groups of five Merino sheep. After four weeks it was found that the rumen protozoal population was nearly three times as great when the ration had been fed in quarters at two-hourly intervals each day as compared with feeding the whole ration as one lot each day. Intermediate results were obtained by feeding different combinations of half rations. [There appears to be a misprint in the table. Ration 4 should surely read "¼ ration fed . . ." and not "½ ration fed . . .".]

—H. SCOTT MCTAGGART.

See also abst. **1943** (report, U.S.A.).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

PYL, G. & HEINIG, A. (1956). Über Gewebsvakzine gegen Maul- und Klauenseuche. **[Tissue vaccine against foot and mouth disease.]**—*Arch. exp. VetMed.* **10,** 378-383. **1738**

The authors studied a quinosol (chinosol) tissue vaccine against F. & M. disease, similar to that described by Gribanov [*V.B.* **25,** 3608]. They concluded that quinosol did not damage the neurotropic variant of the virus. The insoluble components of tissue, which are removed during the conventional methods of vaccine production, contained no immunizing substances. Nevertheless vaccines prepared from incompletely centrifuged extracts were rather more effective in cattle than those clarified by high-speed centrifugation. The effect was, however, so slight that there was no reason to depart from the conventional methods of preparing the vaccine.—R.M.

QUIST, K. D., EADS, R. B. & CONKLIN, A. (1957). **Studies on bat rabies in Texas.**—*J. Amer. vet. med. Ass.* **130,** 66-68. **1739**

In Texas, there have been 35 human deaths from rabies in the past 12 years reflecting a high level of rabies infection in dogs and wild life. Investigations have established that rabies virus is prevalent in the Mexican free tailed insectivorous bat, *Tadarida mexicana,* which migrates from the south to Texas to breed in caves in millions every summer. Rabies virus has also

been found in 3% of the red bat, *Lasiurus borealis*. Virus recovered from *T. mexicana* rapidly killed mice, and infected dogs.—A. ACKROYD.

TJALMA, R. A. & WENTWORTH, B. B. (1957). **Bat rabies—report of an isolation of rabies virus from native Ohio bats.**—*J. Amer. vet. med. Ass.* **130,** 68-70. **1740**

Although Negri bodies could not be found in the brains of any of 63 apparently normal native Ohio brown bats, *Eptesicus fuscus*, intracerebral inoculation of mice with brain tissue from one pool of 3 bats resulted in the classical symptoms of paralytic rabies and death, and rabies virus was isolated from the brains. Negri bodies were present in 50–60%.
—A. ACKROYD.

BINDRICH, H. (1956). Untersuchungen über den "Flury" Stamm des Tollwutvirus. I. Zum Infektionsspektrum. II. Immunisierungsversuche. **[Studies of the Flury strain of rabies virus. I. Infectivity for different animals. II. Immunization experiments.]**—*Arch. exp. VetMed.* **10,** 211-225 & 226-236. **1741**

I. The Flury strain of rabies virus, in a suspension of g. pig brain, caused fatal paresis and paralysis when inoculated intracerebrally into rabbits, g. pigs, mice, sheep and dogs. It was passaged intracerebrally in these animals, and in chick embryos. Of these species of animals, only g. pigs became ill and died after i/m inj. of the strain.

II. After preliminary experiments on rabbits, 25 dogs were inoculated i/m with the Flury strain. Immunity was challenged between 42 and 109 days after inoculation by the i/m inj. of rabies fixed virus, as 5 ml. of a 10% emulsion of mouse brain with 10% testicle extract from healthy rats. Two out of 5 dogs challenged at 42 days, and 2 out of 6 challenged at 109 days became paralysed and died, as did all the non-immunized controls. The other 21 immunized dogs resisted challenge and remained healthy. It was suggested that the antigenic properties of the strain had become impaired by multiple passages in g. pigs. B. warned against the immunization of unhealthy dogs. A litter of 6 puppies, aged 3 months, was inoculated with the Flury strain while they had distemper: 5 of them died from bronchopneumonia, and the survivor was not immune to rabies.
—R.M.

JOHNSTON, R. V., NEWBERNE, J. W., YORK, C. J., BURCH, G. R. & BRUECKNER, A. H. (1957). **Studies with Flury rabies vaccine in pups.**—*J. Amer. vet. med. Ass.* **130,** 61-63. **1742**

Nine out of 10 puppies vaccinated intramuscularly with 3 ml. of Flury rabies vaccine when 8–14 weeks old withstood a challenge with virulent street virus 9 months later, but only 6 out of 17 puppies of similar age vaccinated subcutaneously resisted a challenge four and three-quarter months after vaccination.
—A. ACKROYD.

WESTGARTH, D. R. & WELLS, C. W. (1957). **The apparent inhibitory effect of avianized vaccine on canine rabies in the incubative stage.**—*J. Amer. vet. med. Ass.* **130,** 57-60. **1743**

In the 1952 Kuala Lumpur rabies epizootic, within the first 8 weeks of the compulsory vaccination campaign with Flury rabies vaccine, there were only 7 cases of rabies in vaccinated dogs compared with 28 in unvaccinated dogs. Statistical analysis of the data indicates that this number of cases amongst the vaccinated dogs, all of which were estimated to have been unvaccinated at the time of exposure, is significantly less than would be expected under the hypothesis of equal proportionality of positive cases in vaccinated and unvaccinated categories. Interference may have produced the effect.
—A. ACKROYD.

WIGAND, R. (1956). Hämagglutination durch Vaccinevirus. I. Methode. II. Erfahrungen mit der Hämagglutinationshemmung. **[Haemagglutination by vaccinia virus. I. Technique. II. Haemagglutination inhibition.]**—*Arch. ges. Virusforsch.* **7,** 47-65 & 66-78. [Abst. from English summaries.] **1744**

I. The influence of various factors on haemagglutination by vaccinia virus was investigated. The titre showed a nearly threefold increase when the tubes were rotated for an hour before being allowed to sediment at 37°C. Some samples of fowl blood showed non-specific haemagglutination, which was inhibited by 0·2% normal rabbit serum. [See also *V.B.* **15,** 2351.]

II. The inhibition titre of immune sera against vaccinia haemagglutination was inversely proportional to the concentration of haemagglutinin. Using the same number of haemagglutinin units, the sample of blood or haemagglutinin used, or the temp. of the reaction, were irrelevant. Inactivation of the sera at 56° to 62°C. did not influence the reaction. The serum titres were higher when more dilute r.b.c. suspensions were used, and *vice versa*.

I. ANGELOFF, S., PANAJOTOFF, P., MANOLOWA, N. & NIKOLOFF, P. (1956). Wirkung einiger chemischer Mittel auf das Vakzinevirus und auf das Virus der Schafpocken. [**Action of some chemical agents on vaccinia virus and sheep pox virus.**]—*Arch. exp. VetMed.* **10,** 365-369. **1745**

II. ANGELOFF, S., PANAJOTOFF, P., MANOLOWA, N. & NIKOLOFF, P. (1956). Wirkung einiger Desinfektionsmittel auf Virusarten der Poliomyelitisgruppe. [**Action of some disinfectants on viruses of the poliomyelitis group.**]—*Ibid.* 577-581. **1746**

I. Vaccinia virus in lymph was inactivated after contact for 30 min. with either of the following:—2% HCl, 1% chloramine, 3% bleaching powder, 0·2% acetic acid and 0·1% potassium permanganate. The "Perego" strain of sheep pox virus in lymph was inactivated by contact for 15 min. with 2% HCl, 2% H_2SO_4, 2% phenol or 25% lye.

II. The virus of porcine infectious encephalomyelitis (Teschen disease) was killed by contact for 30 min. with 2% caustic soda or 2% H_2SO_4.—**R.M.**

BRIODY, B. A., HAUSCHKA, T. S. & MIRAND, E. A. (1956). **The role of genotype in resistance to an epizootic of mouse pox (Ectromelia).**—*Amer. J. Hyg.* **63,** 59-68. **1747**

In an outbreak of ectromelia in a colony of laboratory mice, those of C_{57}Bl strain were asymptomatic, partially immune carriers. Incidence and severity were highest in DBA and C_3H mice. Some other strains were resistant, not immunologically but as the result of their genetic background.—E.G.

LIPANOWICZ, J. (1956). Zastosowanie trypaflawiny w ospodyfterii indyków. [**Use of trypaflavine against fowl pox in turkeys.**]—*Weterynaria, Wroclaw.* **2,** 35-39. [In Polish. English and Russian summaries.] **1748**

In an outbreak of fowl pox on a turkey farm 40 out of 400 birds had to be destroyed. Attempted treatments with intravenous injections of urotropine or topical applications of tincture of iodine with glycerol or boric acid were of no avail. Affected birds given combined treatment with 1% trypaflavine i/v and vitamins A and D i/m recovered.—M. GITTER.

WITTMANN, G. & MAYR, A. (1956). Zur Ringzonenbildung in virusinfizierten tierischen Geweben. 2. Mitteilung: Analyse des Phänomens der Ringzonenbildung in geflügelpockeninfizierten Chorioallantoismembranen des Hühnerembryos. [**Ring-zone formation in animal tissues infected with viruses. II. The phenomenon in chorio-allantoic membrane infected with fowl pox virus.**]—*Zbl. VetMed.* **3,** 641-652. [English, French and Spanish summaries. For Part I, see *V.B.* **27,** 1096]. **1749**

The formation of circular lesions in the chorio-allantois of embryonated hen's eggs infected with fowl pox virus was a complex process, related directly to virus multiplication and local circular spread of the virus in the tissues. The process was characterized by concentric exfoliations of the ectoderm, with wall-like concentric proliferations of the underlying entoderm. The local spread of virus in the tissues did not seem to occur uniformly from cell to cell: zones of greater viral activity with more severe cell damage alternated with zones of less activity and less damage. During generalization, the virus first implanted itself in the entoderm, and only later spread to other parts.—R.M.

CAIRNS, H. J. F. (1957). **The asynchrony of infection by influenza virus.**—*Virology.* **3,** 1-14. [Author's summary copied *verbatim.*] **1750**

There is a highly variable delay at some stage in the infection of allantoic cells by influenza viruses. This delay seems to be characteristic for each virus-cell encounter rather than controlled by the cell, since an increase in the number of particles infecting each cell greatly increases the synchrony of virus release. It is as if the time of release of virus from a cell depends solely upon the least delay experienced by any of the particles infecting it. The delay process has a half time of about eight hours and is largely responsible for the great variation in the time before haemagglutination appears in the allantoic fluid after very small inocula. Reasons are given for believing that the delay occurs mainly in the early stages of cell infection.

MATTHIAS, D. (1956). Zur Frage der Erythrozytenschädigung bei der ansteckenden Blutarmut der Pferde. [**Erythrocyte damage in equine infectious anaemia.**]—*Arch. exp. VetMed.* **10,** 442-452. **1751**

The permeability of erythrocytes was determined by measuring their thiocyanate content at between 1 hour and 7 days after a single i/v inj. of 4% sodium thiocyanate solution at a dosage of 100 ml./100 kg. body wt. Eight healthy horses, 14 in the febrile stage of equine infectious anaemia (E.I.A.), 2 with chronic E.I.A. and 2 with anaemia caused by phenylhydrazine were examined. There was more than twice as much thiocyanate in the r.b.c. of horses

with acute E.I.A. and phenylhydrazine anaemia as in those of healthy horses or horses with chronic E.I.A. The highest thiocyanate content coincided with the presence of inclusion bodies in the r.b.c. It was suggested that the virus of E.I.A. damaged the r.b.c. membrane by disturbing the enzyme systems of the cell.—R.M.

JONES, T. C., DOLL, E. R. & BRYANS, J. T. (1957). **The lesions of equine viral arteritis.**—*Cornell Vet.* **47,** 52-68. [Authors' summary slightly modified.] **1752**

Viral arteritis of horses results in specific microscopic lesions in the media of small muscular arteries. These lesions are demonstrable as necrotic foci involving part or most of a short segment of the arterial musculature, which has lost its nuclei and become hyaline and eosinophilic in appearance. Oedema is soon evident in the adventitia of the artery, and lymphocytes infiltrate both the adventitia and the damaged media. These cells and nuclear debris may replace most of the vessel wall. The endothelium and intima are affected only in vessels that are severely involved, as are those of the intestinal submucosa, in which thrombosis and infarction occur. The arterial lesions appear to be the underlying cause of the oedema and haemorrhages, so striking both grossly and microscopically in many organs, as well as of the infarctions of the intestine and lung.

DOLL, E. R., KNAPPENBERGER, R. E. & BRYANS, J. T. (1957). **An outbreak of abortion caused by the equine arteritis virus.**—*Cornell Vet.* **47,** 69-75. [Authors' summary modified.] **1753**

An outbreak of viral arteritis of horses on a breeding farm is discussed. Symptoms, the sequence of clinical cases and abortions, and the lesions found in aborted foetuses are described. Observations in two outbreaks indicate that abortion is a far more serious consequence of infection than mortality or permanent impairment of health.

OLSON, C. JR. & HOERLEIN, A. B. (1956). **Observations on mucosal disease of cattle.**—*J. Amer. vet. med. Ass.* **129,** 466-470. **1754**

In an outbreak of mucosal disease in a herd of 223 calves 24 died. Fifteen days after the beginning of the outbreak 53 new calves were added to the herd. None of these developed mucosal disease despite continuous contact with affected animals for more than 4 months. Two steers and 5 calves were inoculated with material from affected calves. The disease developed in only one calf, which was from the original herd. It is suggested, therefore, that affected calves may be predisposed by a contributory factor. Environment appears to have played a part in the epidemiology of the disease in 2 other herds. In one herd 53 out of 180 calves were affected, but in a group of 10 calves kept apart from the main herd there was only one mild case. In another herd of over 200 cattle the illness was observed in 6 yearling calves after the herd had been brought in from summer pasture. These 6 were placed with 150 apparently normal calves. One of the 6 died, but the 150 were unaffected. Two experimental calves were exposed to infection after being given the food and treated with the insecticides which had been used for affected animals; but they remained healthy.—M.G.G.

HARSHFIELD, G. S. (1956). **SBE—sporadic bovine encephalomyelitis.**—*Fm Home Res.* **7,** 106-107 & 115. **1755**

Of 40 calves infected experimentally with bovine encephalomyelitis only one developed paralysis. In many, fever was the only symptom. P.M. examination, however, disclosed marked peritonitis and pleuritis with a fibrinous network covering the organs, and a quantity of yellow fluid. [See also *V.B.* **23,** 1907 & 1908; **25,** 1008.]—M.G.G.

MOLL, T. (1957). **The etiology and pathogenesis of pneumonia-enteritis in noncolostrum-fed and colostrum-fed calves.**—*Vet. Med.* **52,** 115-118 & 126. [Author's summary slightly modified.] **1756**

Calves born during the summer and deprived of colostrum can be reared successfully under experimental conditions without showing evidence of virus pneumo-enteritis. Calves born during the autumn, winter and early spring are likely to develop the disease under experimental conditions if deprived of colostrum. Calves which receive colostrum can usually be reared successfully under experimental conditions throughout the year, though many colostrum-fed calves do develop the disease after experimental exposure to the virus. The incidence of frank cases increases if such calves are exposed to both the virus and *E. coli.* The role of a "build up" in concentration of virus and secondary bacteria and of a synergic action between virus and these bacteria in disease-production has been discussed. [See also *V.B.* **26,** 2057 & 2058.]

ZLOTNIK, I. & RENNIE, J. C. (1957). **The occurrence of vacuolated neurones and vascular lesions in the medullas of apparently healthy sheep.**—*J. comp. Path.* **67,** 30-36. [Authors' conclusions modified.] **1757**

Vacuoles in the neurones of the medulla of

apparently healthy sheep identical or similar to those seen in sheep with scrapie are reported. Perivascular cuffing similar to that described in experimental scrapie was found in most of the medullas from 57 apparently healthy sheep. The significance of these lesions in the laboratory diagnosis of scrapie is discussed.

GIROUD, P., ROGER, F., VALLÉE, A. & ROGER, A. (1956). Le virus de l'avortement de la brebis. Premiers isolements en France. Mise au point d'un procédé microscopique rapide de diagnostic. **[First isolation in France of the virus of ovine abortion. Microscopical procedure for rapid diagnosis.]**—*Bull. Acad. vét. Fr.* **29,** 393-398. Discussion: pp. 398-401. **1758**

For the first time the virus of enzootic abortion has been isolated in France, 60 abortions having occurred in a flock of 300 sheep near Compiègne. Ewes were found to continue excreting the virus for up to one and a half months after aborting. Diagnosis is based on the finding of elementary bodies in smears of uterine exudate, the bodies being stained red by Machiavello's method and violet-blue by May-Grünwald-Giemsa stain.—H. SCOTT MCTAGGART.

I. POTEL, K. (1956). Das histologische Verhalten der endokrinen Drüsen bei experimenteller Schweinepest. **[Histology of the endocrine glands in experimental swine fever.]** —*Arch. exp. VetMed.* **10,** 189-206. **1759**

II. POTEL, K. (1956). Experimentelle Untersuchungen zur Histopathologie des Zentralnervensystems bei akuter Schweinepest und zur Klärung ihrer Pathogenese. **[Histopathology of the central nervous system in acute swine fever, with reference to pathogenesis.]** —*Ibid.* 288-310. **1760**

I. P. examined the thymus, pineal body, pancreas, testicle, ovary, and thyroid and pituitary glands of 102 pigs, killed between 4 hours and 14 days after experimental infection. [Changes in the adrenal glands have been described by Matthias. See *V.B.* **25,** 2399.] Characteristic lesions were the pronounced vascular changes, consisting of proliferation of the undifferentiated cells of the vessel wall and simultaneous necrobiotic degeneration of the wall. These changes were most noticeable in the pancreas, least in the thyroids. None of the lesions were of specific diagnostic value.

II. Using the same pigs, P. found encephalitis in 80% of them and inflammation of the spinal cord in 35%. The origin of inflammatory changes in nervous tissue was damage to the blood vessels, associated with circulatory insufficiency, which appeared a short time after infection, probably as a result of stimulation of the neuro-vegetative apparatus by the virus. —R.M.

SCHMIDT, D. (1956). Elektrokardiographische Untersuchungen bei Schweinepest. **[Electrocardiographic examinations in swine fever.]** —*Arch. exp. VetMed.* **10,** 415-428. **1761**

Electrocardiograms of 23 young pigs were recorded before and after artificial infection with swine fever virus. Results were described in detail. Changes in the e.c.g. were first recorded 2 days after infection; they were probably due to metabolic disturbances, because no histological changes have been found in the heart at this stage of infection. Death from swine fever was sometimes due to heart failure but was more often caused by general cessation of vital processes.—R.M.

GRALHEER, H. & PEHL, K.-K. (1956). Über die Wanderung des in Blutserum und Liquor enthaltenen Schweinepestvirus bei der Papierelektrophorese. **[Electrophoretic migration of swine fever virus in blood serum and cerebrospinal fluid.]**—*Arch. exp. VetMed.* **10,** 279-287. **1762**

When serum containing swine fever virus was subjected to electrophoresis, the virus migrated with the α and β fractions of the serum, mainly with the α fraction. In cerebrospinal fluid, poor in protein, there was no migration of virus to the anode at pH 8·6. If a bland serum was added to the c.s.f., the virus was present in all fractions. It was concluded that c.s.f. served as a pure and highly potent substrate for the virus, suitable for demonstration of purity of the virus by ultracentrifugation, and for determination of the iso-electric point.—R.M.

LÜBKE, A. (1956). Über Myokardveränderungen bei experimenteller ansteckender Schweinelähme (Teschener Krankheit). **[Changes in the myocardium in experimental Teschen disease.]**—*Mh. Tierheilk.* **8,** 248-254. **1763**

L. examined histologically 29 piglets of which eight had been infected intracerebrally with Teschen disease brain material, eight with tissue culture virus, eight with tissue culture of uncertain virus content, one with chick embryo virus passage and one with heart muscle extract from an infected pig. Two were infected *per os* and one into the tibial bone marrow with a highly virulent brain suspension. All 16 piglets infected intracerebrally with virulent brain and tissue culture material developed Teschen dis-

ease and 15 were killed during the acute paralytic stage. One recovered. Histologically in 14 there was fatty infiltration in the myocardium, believed to have resulted from lack of oxygen, caused by functional disturbances in the c.n.s., particularly in the medulla oblongata, where inflammatory lesions were always present when there was fatty infiltration in the heart muscle. —E.G.

LARSKI, Z. & SZAFLARSKI, J. (1956). Badania nad biologią wirusa choroby cieszyńskiej świń. **[A study of the Teschen disease virus.]** —*Méd. vét., Varsovie.* **12,** 709-713. [In Polish. English and Russian summaries.] **1764**

Using 2 strains of the virus the authors reproduced the disease in all of 270 pigs, 7–8 weeks old, inoculated intracerebrally. The incubation period fluctuated from 4 to 18 days and the LD_{50} titre from 10^{-5} to $10^{-3.5}$. The clinical symptoms were generally preceded by pyrexia but once the symptoms developed the temperature returned to normal, or even subnormal, levels. In about 10% of sick pigs the histological changes were either not well marked or were absent. Attempts to adapt the virus to kittens, day-old chicks, young mice and chick embryos failed. Haemagglutinating or cyto-agglutinating properties of the virus could not be detected. Complement-fixation and precipitin tests also gave negative results.—M. GITTER.

KARSTAD, L. & HANSON, R. P. (1957). **Vesicular stomatitis in deer.**—*Amer. J. vet. Res.* **18,** 162-166. [Authors' summary modified.] **1765**

Vesicular stomatitis was recognized as an enzootic disease in pigs in southeastern States of the U.S.A. in 1952. Detection of neutralizing antibodies in deer from sourthern Georgia and reports of disease by hunters led to the consideration of deer as a possible reservoir of vesicular stomatitis. Five deer inoculated by several routes with vesicular stomatitis virus developed mild, acute, or transitory infections. Deer are probably not important reservoirs of the virus, since recovery is rapid. They may have a minor role in maintaining the summer epizootic. The disease in deer, although mild under experimental conditions, may be more serious under certain stress conditions existing in the field.

CH'IEN LIU. & COFFIN, D. L. (1957). **Studies on canine distemper infection by means of fluorescein-labeled antibody. I. The pathogenesis, pathology, and diagnosis of the disease in experimentally infected ferrets.**—*Virology.* **3,** 115-131. **1766**

COFFIN, D. L. & CH'IEN LIU. (1957). **Studies on canine distemper infection by means of fluorescein-labeled antibody. II. The pathology and diagnosis of the naturally occurring disease in dogs and the antigenic nature of the inclusion body.**—*Ibid.* 132-145. [Authors' summaries modified.] **1767**

I. A study of the pathogenesis of canine distemper infection in ferrets using fluorescein-labelled antibody revealed that viral antigen was first detectable in the cervical lymph nodes 2 days after intranasal inoculation. Subsequently, the virus spread to the mediastinal nodes, the mesenteric nodes, the spleen, the Kupffer cells of the liver, and the blood. About a week after infection, viral antigen began to appear in the epithelium of the gastro-intestinal tract, the respiratory tract, the urinary tract, and the cutaneous tissues. Infected animals usually died. The viral antigen usually appeared as fine intracytoplasmic fluorescent granules during the early stage of infection. As the infection progressed, the antigen aggregated to form large, oval objects in the cytoplasm or in the nucleus corresponding to the size and shape of eosinophilic inclusion bodies. Viraemia was demonstrable before fever and other obvious signs of distemper appeared; it persisted until death. Examination of peripheral blood smears for fluorescent leucocytes containing specific viral antigen is a rapid method of diagnosis of distemper in ferrets.

II. In dogs with natural distemper infection specific viral antigen was found in the visceral and cutaneous tissues as well as in the brain, depending on the stage of the infection. Localization of viral antigen in cutaneous tissues and visceral organs was similar to that in the ferrets (I above). In the brain of the dogs, however, viral antigen in the form of fluorescent granules or oval masses was found in the cell bodies of the neurones and in their dendrites and axones; also in ependymal cells and astrocytes. Viral antigen was seen in the walls of blood vessels of the brain in dogs with or without lesions of the c.n.s. The fuchsinophilic distemper inclusions in urinary bladder mucosa cells stained by the Sellers (1927) method were found to be antigenic. The acidophilic inclusions seen after Shorr's Triple (S-3) stain were usually not antigenic.

For the rapid diagnosis of acute canine distemper infection in dogs, fluorescent antibody staining of cells in conjunctival smears is found to be simple and practical for rapid diagnosis of acute distemper in dogs. It could be applied to imprint smears of various organs for specific P.M. diagnosis.

POTEL, K. (1956). Zur Histologie und Pathogenese der infektiösen Fibromatose (Shope) des Kaninchens. **[Histology and pathogenesis of Shope's infectious fibroma in rabbits.]**—*Arch. exp. VetMed.* **10,** 145-167. **1768**

The changes which followed subcutaneous and intratesticular inoculation of Shope's fibroma virus in the rabbit may be divided into three stages. The first consisted of acute inflammation, with an exudate rich in fibrin, considerable migration of leucocytic and lymphocytic cells, and proliferation of young connective tissue cells. During the second stage the cellular picture was dominated by the so-called fibroma cell, giving a structure resembling a true neoplasm. The last or regressive stage was characterized by combined necrotic and inflammatory processes, leading to destruction of the fibromatous tissue by resorption and induration. Fibromatosis represented a transitional stage between the true tumour, such as Rous sarcoma, and the proliferative processes accompanying some virus infections.—R.M.

DICK, G. W. A., NIVEN, J. S. F. & GLEDHILL, A. W. (1956). **A virus related to that causing hepatitis in mice (MHV).**—*Brit. J. exp. Path.* **37,** 90-98. **1769**

A murine hepatitis virus, unrelated to that of human hepatitis, was isolated from mice in an attempt to recover the human virus following experimental infection. This murine virus, unlike the known murine strain to which it appeared related, produced ascites in adult mice and was of great virulence for weanlings. Following infection with *Eperythrozoon coccoides* in weanlings susceptibility to an early passage of the virus was increased, but pre-treatment with *E. coccoides* had no effect on virus multiplication in sucklings and weanlings infected with a later virus passage. Intracerebral infection of weanlings with a neurotropic variant of the virus resulted in fatal meningo-encephalitis accompanied by slight hepatitis. There was also mild hepatitis when the virus was administered intraperitoneally, but nervous symptoms were absent. Hepatitis was more marked in mice pre-treated with *E. coccoides*.—E.G.

HAAS, V. H., STEWART, S. E. & BRIGGS, G. M. (1957). **Folic acid deficiency and the sparing of mice infected with the virus of lymphocytic choriomeningitis.**—*Virology.* **3,** 15-21. [Authors' summary copied *verbatim.*] **1770**

Mice infected with lymphocytic choriomeningitis (LCM) in normally fatal doses were spared by suitable administration of amethopterin. When citrovorum factor was given along with amethopterin, the sparing effect was essentially eliminated. Mice maintained on diets deficient in folic acid were also spared. It is concluded that folic acid has a critical role in determining the outcome of this type of infection in mice. But virus was recovered from the brains of spared mice in quantities comparable to that in untreated controls. Hence the sparing effect associated with deficiency or blocking of folic acid is not attributable to a need for this metabolite in virus replication. The underlying mechanism that permits mutual survival of host and virus in this situation is still obscure.

SEADALE, E. H. & WINTERFIELD, R. W. (1956). **Propagation of Newcastle disease virus in tissue culture preparations.**—*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 2 pp. **1771**

Hearts and livers of 10-day-old chick embryos were used for the study of growth cycles, fluid volume and cytopathogenicity in "Maitland" cultures. Livers alone were used in trypsinized cultures. Satisfactory titres were obtained in both cultures though the former more often gave better over-all titres (the reason for this was obscure). The growth characteristics of 2 strains of virus were essentially the same. Maximum titres were obtained with 20–30 ml. in 32-oz. bottles and diminished progressively with increasing quantities. Tissue culture titrations based on cytopathogenicity were somewhat more sensitive than virus assays in chick embryos, in which they were always lower. Antiserum neutralized 40,000 embryo $L.D._{50}$ of virus *in vitro*. Haemagglutinating activity of tissue culture passage-material was evident in low level titres. In over 100 passages of the 2 strains of virus in embryonic tissues there was no evidence of loss of virulence.—T.E.G.R.

FOSTER, N. M. & THOMPSON, C. H., JR. (1957). **The comparative thermolability of four strains of Newcastle disease virus of widely varying virulence.**—*Vet. Med.* **52,** 119-121. [Abst. from authors' summary.] **1772**

The four strains survived or were destroyed after almost identical periods. The results were tabulated. Ability to survive outside of a living animal body therefore appears to be more closely associated with the original quantity of virus than with the virulence of the strain.

TOKUDA, M. (1956). **Studies on Newcastle disease virus (Miyadera strain).**—*J. Immunol.* **77,** 386-395. **1773**

A chick embryo-adapted strain was passaged in the brains of mice. The incubation period decreased and infectivity for mice increased with the number of passages. Infectivity for chicks decreased after passage in mice, but the virus immunized chicks against egg-adapted virus. Haemagglutination-inhibition and indirect c.f. tests with egg-adapted virus and the sera of chicks inoculated with mouse-adapted virus were positive. Haemagglutinins from infected mice were demonstrated at pH 6.1 and were inhibited by hyperimmune serum against the mouse-adapted as well as the egg-adapted strains. For the c.f. test hyperimmune serum was produced by intracerebral inoculation of allantoic fluid into g. pigs; the antigen used was the supernatant fluid of suspensions of allantoic membranes. Only a few passages could be effected in g. pig brains. Intracerebral inoculation of virus into cats was followed by cerebral symptoms—T.E.G.R.

SING CHEN CHANG, REAGAN, R. L. & BRUECKNER, A. L. (1956). **Effect of prolonged incubation of Newcastle disease virus infected chicken embryos on the stability of the virus in the allantoic fluid.**—*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 1 p. **1774**

There was no inactivation of either infectivity or haemagglutination during incubation up to 24 hours after death of the chick embryos. —T.E.G.R.

DARDIRI, A. H., CHANG, P. W. & FRY, D. E. (1956). **Immunity study of three types of Newcastle vaccine for broilers.**—*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 4 pp. **1775**

A water, a dust and a killed virus (aluminium adsorbed) vaccine were tested on six groups of chicks. Two groups were vaccinated with water and with dust vaccine respectively at 5 days. Two other similarly treated groups were given a second dose of the respective vaccine at 4 weeks. A fifth group was vaccinated with killed virus at 10 days and a sixth group was kept as control. At 3 weeks of age and each week thereafter 5 chicks were taken from each group. Their sera were subjected to the haemagglutination-inhibition test and the birds were challenged by the intratracheal route. The groups receiving a second dose of vaccine were similarly treated at 6 weeks of age. The HI titre in birds which had received one dose of water vaccine varied from 1:4–1:16 at 3 weeks of age and dropped sharply at 4 weeks. In birds vaccinated with 2 doses of water vaccine the titre varied between 1:4–1:64 at 8 weeks up to the 15th week. In the group which received one dose of dust vaccine 68% had an HI titre between 1:4–1:64 from the 6–9th week, after which it dropped; the response to 2 doses was considerably higher. A high titre up to the 12th week of age and a high survival rate up to 16 weeks of age were observed in birds vaccinated with the killed virus. Double vaccination engendered a significantly higher resistance to challenge than single vaccination. Control birds did not show HI antibody response and all succumbed to challenge.—T.E.G.R.

MAZZARACHIO, V. & ORFEI, Z. (1956). Ricerche sul vaccino-virus attenuato ceppo "F" della pseudo-peste aviaria. [**The attenuated "F" strain of Newcastle disease virus.**]—*R. C. Ist. sup. Sanit.* **19**, 807-1826. [English, French and German summaries.] **1776**

Immunity tests were carried out on 3 groups of chicks, 20 days old, the vaccine being instilled intranasally (in doses of 4 minims) or injected intramuscularly (0·2 and 1 ml). The sera of vaccinated birds were subjected to haemagglutination-inhibition tests and the birds themselves were challenged with virulent virus—*per os*, intramuscularly, or by direct contact with infected birds. It is concluded that: no side effects are produced; the HI titres are lower than those obtained with the "Hertfordshire" strain; in birds vaccinated by intranasal instillation or by intramuscular inj. of 1 ml. immunity lasts longer than 90 days if challenge is *per os* or by contact while, if challenged by i/m inj., immunity disappears at 90 days.—T.E.G.R.

WINTERFIELD, R. W. & SEADALE, E. H. (1956). **Some factors influencing the immune response from the administration of Newcastle disease vaccine through the drinking water under laboratory and field conditions.**—*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 2 pp. **1777**

Laboratory and field trials were carried out with 3 strains of virus on 59,100 chicks, including controls. The dosage for satisfactory immunity was assessed. It was observed that in the presence of strong passive immunity even high dosages failed to provide a satisfactory antigenic stimulus. The three strains tested were relatively avirulent. One gave rise to more pronounced respiratory symptoms than the other

two; none, however, appeared to be neuropathogenic. None of the strains produced gastro-intestinal symptoms.—T.E.G.R.

RUBIN, H. & FRANKLIN, R. M. (1957). **On the mechanism of Newcastle disease virus neutralization by immune serum.**—*Virology.* **3,** 84-95. [Authors' summary slightly modified.] **1778**

Newcastle disease virus is shown to be neutralized by immune serum in an exponential manner, which implies that only one antibody molecule is required for inactivation of an infectious particle. A very small fraction of the neutralized particles can be reactivated upon dilution of the serum virus mixture. Experiments using virus labelled with radioactive phosphorus indicate that while a single antibody molecule can inactivate the virus as far as its ability to produce infective progeny is concerned, the attachment of several such molecules is required to prevent adsorption of the virus to the host cell. However, those inactivated particles which successfully adsorb can be removed with receptor destroying enzyme. It is suggested that the basic mechanism of neutralization is to prevent penetration of the host cell. The implications of this work for the first steps of infection by active virus are discussed.

O'MEARA, D. C. (1956). **Serum absorption studies of infectious bronchitis virus.**—*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 2 pp. **1779**

A modified serum neutralization test for the assay of the live-virus content of infectious bronchitis vaccines was studied. Results were inconsistent.—T.E.G.R.

COVER, M. S. (1956). **The isolation of a viral agent from chickens showing respiratory distress.** —*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 6 pp. **1780**

A respiratory condition in a flock of chickens aged about 6 weeks was investigated. The birds had been vaccinated against Newcastle disease by the spray method at 10 days and 4½ weeks of age. Pathological changes similar to those seen in chronic respiratory disease were observed P.M. Material from tracheal scrapings was inoculated into chick embryos and passaged 17 times. The virus (from the scrapings and from the chorio-allantoic fluid) was inoculated into birds aged 6 weeks. Mild respiratory symptoms of short duration were observed in some cases. The virus was recovered from tracheal scrapings from these birds. Serum neutralization and cross immunity tests led the authors to believe that they were dealing with a strain of laryngotracheitis virus. —T.E.G.R.

SHEHATA, H. & REUSS, U. (1957). Virus-Hepatitis der Enten in Deutschland. [**Virus hepatitis of ducks in Germany.**]—*Dtsch. tierärztl. Wschr.* **64,** 27-29. **1781**

Virus hepatitis in ducklings is reported in Germany for the first time. The clinical course and P.M. findings corresponded with those described in the literature. After attempts to isolate a bacterial agent in culture had failed, the virus aetiology was established by inoculation of ducklings and embryonated hens' eggs with organ suspensions which had been filtered or treated with antibiotics. Infected allantoic fluid was neutralized by duck hepatitis immune serum from the U.S.A. One of the authors (Shehata) had seen the disease in Egypt.—M.G.G.

SEVOIAN, M., SNOEYENBOS, G. H., BASCH, H. & REYNOLDS, I. (1956). **Studies of infectious synovitis. A preliminary report.**—*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 3 pp. **1782**

Experimental infection was set up in test birds by i/v inoculation of 0·5 ml. of the "agent" of infectious synovitis. Symptoms of depression, listlessness and green diarrhoea occurred 5 days later. The blood picture showed: an increase in the thrombocyte, heterophile, and total w.b.c. counts and sedimentation rate; a decrease in the haematocrit, Hb content and r.b.c. count and differential lymphocyte count. These changes were most marked between the 5–16th days. Significant pathological changes were observed in the brain, liver, heart, gizzard, spleen, bone marrow, joints, thymus and bursa of Fabricius, lungs and sternal bursa. Of a number of therapeutic and prophylactic agents tested, chlortetracycline afforded complete protection at 200 g./ton of feed and partial protection at 50 g./ton of feed; at the onset of symptoms 200 and 400 g./ton for 14 days decreased the severity and extent of lesions in chickens and turkeys. With furazolidone in chicks there was some activity at 100 and 200 g./ton and complete protection at 400 g./ton; in turkey poults there was no prophylactic activity at 400 g./ton. High levels of chlortetracycline or furazolidone (800 g./ton) for 14 days after infection prevented symptoms or lesions in chicks during the period of treatment.—T.E.G.R.

I. ECKERT, E. A., BEARD, D. & BEARD, J. W. (1956). **Virus of avian erythroblastosis. I. Titration of infectivity.**—*J. nat. Cancer Inst.* **16,** 1099-1120. **1783**

II. BEAUDREAU, G. S., BONAR, R. A., BEARD, D. & BEARD, J. W. (1956). **Virus of avian erythroblastosis. II. Influence of host age and route of incubation on dose response.**—*Ibid.* **17,** 91-100. [Authors' summary modified.] **1784**

I. Studies were made of host response to the virus of avian erythroblastosis. The relationship of the median logarithm of the latent period to the logarithm of the dose was essentially linear, and was suitable for titration or biological assay of the agent. The virus was highly infectious for an inbred line of White Leghorn chicks and much less infectious for another breed of chicks. Age at the time of inoculation, within the range of 3–54 days, exerted little influence on the response of the host. The relevance of these findings to the aetiology of avian erythroblastosis and avian myeloblastosis was discussed.

II. Inoculation of the virus into the medullary canal of the tibia was 1·2 times less effective than i/v inj.; the i/m, i/p and s/c routes were respectively 22, 393 and 1,400 times less effective than i/v inj. These results were qualitatively similar to those of previous experiments with the virus of myeloblastosis [*V.B.* **26,** 175]. The age of the chicks used was between 7 and 77 days; there was a progressive increase in susceptibility with increasing age within this range. This was contrary to the findings in myeloblastosis infection.

DICKINSON, E. M., BABCOCK, W. E. & KILIAN, J. G. (1957). **Ornithosis in Oregon turkey.**—*J. Amer. vet. med. Ass.* **130,** 117-118. [Authors' summary modified.] **1785**

Psittacosis in 2 turkeys in Oregon was diagnosed by mouse inoculation. The similarity of lesions of pasteurellosis and psittacosis emphasizes the importance of animal inoculations and bacteriological studies in all suspected cases in order to establish an accurate diagnosis.

HAUSSMANN, H. G., SIEGERT, R., UNGER, W. & RUOF, H. (1956). Beiträge zur Psittakose-(Ornithose-) Infektion des Menschen. Epidemiologie, seuchenhygienische und serodiagnostische Erfahrungen bei einigen Gruppen-Epidemien in Hessen. **[Psittacosis in man; epidemiology, control and serological observations in group epidemics in Hessen.]**—*Arch. Hyg., Berl.* **140,** 52-78. **1786**

The authors gave a detailed historical account of psittacosis in Germany and studied the disease in Hessen and other parts of Germany.

During and following the second world war legislation to limit the disease broke down. Breeding of cage birds nevertheless continued and smuggling of birds was prevalent. The authors failed to isolate the virus from 17 convalescent persons and from 5 with inapparent infection.

An epidemic in human beings developed in Frankfurt/Main in 1953-54; there were 32 cases, none fatal. The authors made complement-fixation tests of the sera of convalescents and others and advocated control measures, mainly by maintaining a close check on sources of infection and preventing clandestine trading in susceptible birds.—W.A.P.

FAHEY, J. E. (1956). **Tissue culture studies of the avian viruses.**—*Proc. 28th Ann. Meet. N.E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 4 pp. **1787**

Two strains of infectious bronchitis virus were passaged serially in minced chorio-allantoic membrane in stationary flask and tube cultures and in roller tube cultures. At the end of the passage series the virus was identified by the serum neutralization test. The growth curves of the 2 strains were also studied in stationary flask cultures and in stationary tube cultures. In the latter no cytopathogenic effect was produced and growth continued as long as cellular growth or maintenance occurred. Other culture tissues used were mouse liver, rat liver and monkey kidney. The first 2 gave negative results while propagation took place on the 3rd. Again no cytopathogenic effect was observed. Some of the results of these experiments are compared with those obtained with Newcastle disease virus in tissue culture and their practical significance is discussed.—T.E.G.R.

RICE, F. A. H. & STEVENS, M. B. (1957). **Isolation from human and pork lung of an inhibitor of virus haemagglutination.**—*Science.* **125,** 67-68. **1788**

Using a complicated extraction procedure, the authors isolated a substance from human and porcine lungs which inhibited the agglutination of avian r.b.c. by the viruses of influenza, mumps and Newcastle disease. 100 mg. of the substance was obtained from 10 kg. of fresh lung. Physico-chemical properties were described, but the chemical nature of the substance is not yet known.—R.M.

BANFIELD, A. W. F. (1956). **An investigation of ticks as disease vectors in Banff National Park, Alberta.**—*Canad. J. Zool.* **34,** 417-423. **1789**

Adult *Dermacentor andersoni* and *D. albipictus* were collected from hillsides within the park, and six Columbian ground squirrels harboured nymphs of *D. andersoni*. The Colorado tick fever virus was demonstrable by g. pig inoculation in four lots of ticks from three areas of the park occupied by Bighorn sheep (*Ovis canadensis*). Inconclusive evidence was advanced on the occurrence of Rocky Mountain spotted fever rickettsia in some ticks.

—G. K. SWEATMAN.

BROTHERSTON, J. C. & COOKE, E. R. N. (1956). **Q fever in Kenya.**—*E. Afr. med. J.* **33,** 125-130. **1790**

Four cases in man are described. Of 35 cattle examined for Q fever antibodies, 20 were positive and 2 doubtful. It is pointed out that the dry, dusty conditions in Kenya are very favourable for the spread of the infection.

—M.G.G.

RAŠKA, K. & SYRŮČEK, L. (1956). Ein Beitrag zur Epidemiologie der Q-Rickettsiose. [**Epidemiology of Q fever in Czechoslovakia.**]—*Zbl. Bakt. I. (Orig.)* **167,** 267-280. [English, French and Russian summaries.] **1791**

The results are given of a 4 years' investigation into the epidemiology of Q fever in Czechoslovakia. Cows, sheep and goats appeared to be the chief sources of infection. Positive reactions to the c.f. test were also found in 15 out of 21 horses and in 9 out of 13 dogs. Q fever in man was at its most frequent when farm animals were giving birth to their young because of the high content of rickettsia in the placentas and afterbirths. Transmission rarely took place through milk. One region investigated appeared to have been free from *R. burneti* infection until a few years ago, when it was introduced with imported sheep. Reservoirs were quickly established in the herds of cattle and sheep, also goats, whence the infection spread to other domestic animals, and also to wild animals and birds where it is becoming endemic. In this rats and mice may have played an important role, but that of ticks is considered to have been small. Of 301 rats examined serologically 42 were positive reactors and 30 of 533 other wild rodents were positive. All of 126 shrews were negative and 1 of 3 moles gave a doubtful reaction. Attempts to isolate *R. burneti* were successful in 4 rodents. Antibodies were also found in the fox and marten. *R. burneti* was demonstrated in the faeces of an experimentally infected sparrow and was isolated from the spleen and kidneys 35 days after infection. [See also *V.B.* **27,** 1458].—M.G.G.

See also abst. **1939** (report, Ministry of Agriculture, Great Britain).

IMMUNITY

READER, R (1956). **A micro method for the determination of complement.**—*Aust. J. exp. Biol. med. Sci.* **34,** 257-262. [Author's summary modified.] **1792**

A method for complement determination requiring only a drop of blood from a g. pig's ear, rat's tail or a finger prick is described. Whole blood measured in an opsonic pipette is diluted accurately and the cells removed by centrifuging. The supernatant plasma is titrated for complementary activity and the whole blood value converted to the plasma value by the haematocrit factor. Magnesium ion is used in the diluent and the red cells used in each titration tube are standardized so that the normal 50% haemolysis titre for human and rat complement is approx. 300 and for g. pigs 1100 units per ml. The results by this method were comparable with those obtained with serum from clotted blood.

BECKER, E. L. (1956). **Concerning the mechanism of complement action. I. Inhibition of complement activity of diisopropyl fluophosphate. II. The nature of the first component of guinea pig complement.**—*J. Immunol.* **77,** 462-468 & 469-478. [Absts. from author's summaries.] **1793**

I. Diisopropyl fluophosphate (DFP) inhibited the haemolytic activity of g. pig complement in the presence of sensitized cells. In the absence of sensitized cells this inactivation did not occur. On titration of the component activity of dialyzed supernatant from the DFP-complement-sensitized cell mixture only the first component, C'1, was found to be appreciably affected. DFP also removed C'1 activity from sensitized cells containing C'1 and C'4 activity. It is concluded that the first component of g. pig complement, C'1, is an esterase which exists in serum in a precursor form resistant to the

action of DFP. In the course of immune haemolysis the C'1 precursor is changed to a form of C'1 capable of being inhibited by the fluophosphate.

II. Cells containing the 1st, 2nd, and 4th components of g. pig complement hydrolyzed *p*-toluene sulphonyl L arginine methyl ester (TAM). Unsensitized cells treated with complement, or sensitized cells not so treated, did not. The action of the components on the ester had the characteristics of an enzyme reaction. A quantitative correlation was found between changes in the C'1 and esterase activity of the 3 components. It is concluded that C'1 is a TAM esterase, and that C'1 is another example of a protease with this esterase activity.

GENTRY, R. F. (1956). **A simplified method for the titration of antigen in the beta hemagglutination-inhibition test.**—*Proc. 28th Ann. Meet. N. E. Conf. Lab. Wkrs Pullorum Dis. Contr.* Newark, Delaware. June 19 & 20, 1956. 3 pp. **1794**

This method depends, for its accuracy, on the concentration of virus in the antigen, viz., 8 haemagglutinating units/0·5 ml. The procedure for obtaining the requisite dilutions is described. Agglutination plates are used for the tests. These have the advantage of being easily read from the top and when tilted, and a number of tests can be carried out simultaneously.—T.E.G.R.

DIXON, F. J. & WEIGLE, W. O. (1957). **The nature of the immunologic inadequacy of neonatal rabbits as revealed by cell transfer studies.**—*J. exp. Med.* **105**, 75-83. [Authors' summary modified.] **1795**

Rabbit lymph node cells capable of either primary or secondary antibody responses following transfer to adult normal or X-irradiated rabbits made no response after transfer to neonatal rabbits. It seems that the environment provided by the neonatal recipient is unsuitable for the immunological activities of transferred cells in the early phases of the immune response. Neonatal rabbits could, however, support adequately cells transferred during the process of active antibody formation. These findings suggest that the immunological inadequacy of the neonatal animal is related to its internal environment and not necessarily to a lack of cells capable of antibody synthesis.

JOUBERT, L. & GORET, P. (1956). La sérologie non spécifique en médecine vétérinaire. Son contrôle par électrophorèse sur papier. **[Paper electrophoresis in the study of non-specific serology in veterinary medicine.]**—*Rev. Path. gén.* **56**, 909-965. **1796**

Non-specific serology may be defined as the study of physico-chemical changes in the serum due to disease. This is a lengthy discourse, divided into 3 parts:— the physico-chemical mechanism of the reactions used; techniques proposed for use in veterinary medicine; results obtained and their electrophoretic control. Serum samples from normal and sick horses, cattle, pigs, dogs and cats were examined by electrophoresis on paper and by the formol-gel test, the mercuric chloride test, blood sedimentation rate, and other methods. The results of the various tests seldom agreed with those obtained by paper electrophoresis and with each other; they appeared to be of little practical value, particularly when compared with the precision of current serological tests for specific diseases.—A. E. PIERCE.

See also absts. **1641, 1643 & 1646 (TB.); 1656** (effect of u.v. light on swine erysipelas serum); **1658-1660** (swine erysipelas vaccine); **1669** (Past. pseudotuberculosis); **1678** (type A phages of S. typhi-murium); **1682** (report, Antigen Committee); **1685** (intradermal test for brucellosis); **1686** (Coombs test); **1687** (differential serum-agglutination test in brucellosis); **1690-1696** (brucellosis); **1699 & 1703-1705** (leptospirosis); **1734** (anaplasmosis); **1738** (F. & M. disease); **1740-1744** (rabies); **1766-1767** (distemper); **1775-1778** (Newcastle disease); **1779** (avian infectious bronchitis).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

RODRIGUEZ, J. L., JR. & RIEHL, L. A. (1957). **Control of the chicken body louse on hens by self-treatment with malathion dust.**—*J. econ. Ent.* **50**, 64-67. [Authors' summary modified.] **1797**

Dust formulations containing 1, 2, 4, or 10% malathion were applied manually to the surface of the floor litter of fowl pens, or were put in dust-bath boxes. Distribution of malathion on the fowls was obtained by means of self-treatment accomplished by the natural dusting activities. Results demonstrated the high insecticidal efficiency of malathion against *E. stramineus*, and the efficacy of the method of application.

No lice were found after application of dust containing concentrations as low as 2% malathion (1) within 70 days, when used for the entire floor litter surface at 1 lb. for 20 sq. ft.; or (2) within more than 44 days, when 10 lb. a pen were put in the dust-bath only. Either dosage was equivalent to 4 lb. for every 100

birds. When dust-bath boxes were used, control of *E. stramineus* for more than 35 days was obtained with concentrations as low as 4% malathion used at 2 to 3 lb. of dust a pen or 1 lb. for every 100 birds.

I. MOULE, G. R., YOUNG, R. B. & MCFARLANE, B. D. (1955). **Field observations on the prevention of breech strike in Merino sheep by jetting with aldrin, BHC, dieldrin and endrin.** —*Qd J. agric. Sci.* **12**, 101-106. **1798**

II. MOULE, G. R., MCFARLANE, B. D., YOUNG, R. B & DERBYSHIRE, D. S. (1957). **Field observations on aldrin, dieldrin, diazinon and arsenic in the prevention and control of breech strike in Merino sheep.**—*Aust. vet. J.* **33**, 15-20. **1799**

I. In field trials in North Queensland during two consecutive years to assess the efficiency of these insecticides for the control of fly strike, unshorn Merino lambs, 4–7 months old, were used. The back and breech were saturated, using about ½ gal. of material. As no body strikes occurred assessments were made on breech strike. In 1954 seven inches of rain fell, over 2 days, two weeks after the trial started. Aldrin, B.H.C. and dieldrin were used at a concentration of 0·1%. Strikes occurred on the untreated control group throughout the trial period of 3 months, 61% of these sheep being affected. In the aldrin and dieldrin groups 27% of the sheep were struck over 12 weeks, the first strikes occurring 4 weeks after treatment. In the B.H.C. group 80% were struck, the first strikes occurring 2 weeks after treatment. After the sixth week the strike rate in all groups was similar to the control group.

In 1955 aldrin, dieldrin and endrin were used at a conc. of 0·05%. During the first three weeks of the trial 7·36 in. of rain fell over a period of 10 days. Strikes commenced in the untreated sheep 3 weeks after the trial started and 56% were struck over the following 12 weeks. Over the trial period the group treated with dieldrin had 12% of strikes and the endrin group 18%; in each group the first strikes occurred after 9 weeks. The aldrin group had 26% strikes starting in the 5th week. After the 9th week the strike rate in all groups was similar.

II. These trials are a continuation of a previous series [I above]. The first of this series was carried out in the dry spring of 1955 and the second in the wet summer of 1956. The trials were made on unshorn Merino lambs, 3–4 months old. Treatment was similar to that of the first series.

In the first trial diazinon at 0·04%, aldrin at 0·05%, dieldrin at 0·05% and arsenic at 0·8% were used. Strikes commenced in the untreated sheep immediately after treatment and 18% were struck over the following 13 weeks. The groups treated with arsenic and aldrin showed a strike rate similar to the control sheep. The strike rate in the dieldrin and diazinon groups was very much lower: the first strike occurred 2 weeks after treatment in the former and 5 weeks after treatment in the latter group. Only 0·71 in. of rain was recorded during the trial.

In the second test diazinon at 0·04%, dieldrin at 0·5% and arsenic at 0·8% were again used. Also, one group was tip sprayed with 0·05% dieldrin. Strikes began in the untreated sheep immediately after the trial commenced and 23% were struck during the following 7 weeks. The arsenic group was again similar to the controls and the group tip sprayed with dieldrin was little better. Two sheep were struck in the diazinon and one in the dieldrin "jetted" groups. 12·94 in. of rain fell during the trial period.—N. P. H. GRAHAM.

RICHES, J. H. & O'SULLIVAN, P. J. (1957). **The value of the organic phosphorus insecticides malathion and diazinon for the protection of sheep against body strike.**—*Aust. vet. J.* **33**, 34-38. **1800**

Protective value of these insecticides was tested in 3 trials by a maggot implant technique. The protection was considered broken when maggots survived on more than two occasions on 50% of the test areas. Malathion at 0·25, 0·1 and 0·05% broke at 10, 8 and 7 weeks respectively. In the second trial aldrin at 0·05% and diazinon at 0·04% and 0·008% broke at 9, 33 and 22 weeks respectively. In the third trial dieldrin at 0·025% and diazinon at 0·02% were tested on sheep carrying wool ¾ to 1 in., 1¾–2 in., and 2½–3 in. long. The wool length made no appreciable difference to the protection obtained. The dieldrin broke at 7–9 weeks and the diazinon at 16–18 weeks. During the second test 12 inches of rain were recorded and during the third test 31 inches.—N. P. H. GRAHAM.

WATERHOUSE, D. F. (1955). **Functional differentiation of the hindgut epithelium of the blowfly larva into longitudinal bands.**—*Aust. J. biol. Sci.* **8**, 514-529. **1801**

Evidence is accumulating that the hindgut epithelium of an insect is an active tissue which plays an important role both in metabolism and in regulating the products of excretion. The central hindgut of blowfly larvae is shown to be composed of three histologically distinguishable

cell types each forming a longitudinal band. Some of the biochemical characteristics of these regions are described.—M. D. MURRAY.

COBBETT, N. G., PETERSON, H. O. & JONES, E. M. (1957). **Tests involving the oral administration of phenothiazine, hexachloroethane and di-n-butyltin dilaurate for the control of cattle grubs.**—*Vet. Med.* **52,** 69-72. [Authors' summary modified.] **1802**

Drenching infested cattle with phenothiazine, hexachloroethane, or di-n-butyltin dilaurate did not reduce the number of warbles per animal, nor the number of infested cattle. Daily treatment of a small number of cattle with 2 to 4 g. of phenothiazine incorporated into their food appeared to reduce the incidence; however, in a larger trial involving many more animals no significant difference in the number of infested animals or the number of warbles per animal was observed between treated animals and untreated controls.

KRIVKO, A. M. (1956). **[Natural division of the spring generation of larvae of *Oestrus ovis* in the Alma-Ata region.]**—*C. R. Acad. Sci., U.R.S.S.* **111,** 248-249. [In Russian.] **1803**

During 1952-53 the heads of 216 slaughtered sheep were examined for *Oes. ovis* larvae. First-stage larvae were found in the sinuses throughout the year, while second-stage larvae were absent during September and October, and third-stage larvae were absent during September, October and November. In naturally infected lambs born in spring, third-stage larvae were present by 11th July of the same year. If infection was delayed until autumn, third-stage larvae were present from December of the same year to the middle of July the following year. Thus each year there were two generations of larvae in the Alma-Ata region. A similar observation has been recorded in New Mexico by Cobbett & Mitchell [*V.B.* **12,** p. 454]. —R.M.

SCHOOF, H. F. & KILPATRICK, J. W. (1957). **House fly control with parathion and diazinon impregnated cords in dairy barns and dining halls.**—*J. econ. Ent.* **50,** 24-27. [Authors' summary modified.] **1804**

Cotton cords (3/32″ diameter) impregnated in a 10% parathion-xylene solution provided satisfactory to excellent house fly control in dairy barns. Cotton cords of 3/16″ diameter impregnated in a 25% Diazinon-xylene soln., gave excellent control in a dairy from May to the middle of October. Removal of the Diazinon-treated cord from the dairy in August caused a rise in fly densities from 6 to 133 flies per grill count in 4 weeks. Subsequent reinstallation of the same cords reduced the indices to below four flies per grill count for the remainder of the season.

KOHLS, R. E., TODD, A. C. & DICKE, R. J. (1957). **Development of the house-fly *Musca domestica* L. when exposed to phenothiazine in artificial cultures.**—*Vet. Med.* **52,** 108-110. [Authors' summary modified.] **1805**

Phenothiazine N.F., purified phenothiazine, and phenothiazine N.F. in 2 μ particle size, all affected the development of larvae of *M. domestica* in artificial cultures, the drug being larvicidal in direct proportion to its concentration in the culture media. The third formulation most effectively reduced the number of adult flies which emerged; the second was next in efficiency. These tests suggest that a 2 g. daily dosage of phenothiazine in the diet of cattle would not completely suppress the development of fly larvae in their faeces, and that a search for compounds administered internally to animals to exert an effect on the development of manure-breeding flies should be continued.

HOOGSTRAAL, H. (1956). **Some African tick problems.**—*Bull. epiz. Dis. Afr.* **4,** 275-282. [French summary p. 320.] **1806**

In reviewing the subject H. illustrates with examples how meagre our knowledge is and how certain statements require more work before they can be accepted as facts. He presents many unsolved problems and suggests that if certain species were of veterinary importance more would be known of them, since veterinarians have contributed more to African tick biology than any other group of workers.—D. POYNTER.

RODRIGUEZ, J. L., JR. & RIEHL, L. A. (1957). **Malathion spray for fowl tick control.** — *J. econ. Ent.* **50,** 41-43. [Authors' summary modified.] **1807**

Aqueous sprays of malathion, prepared from the 57% emulsifiable liquid formulation, were tested for control of *Argas persicus,* infesting a laying flock. The sprays were applied by power-driven equipment, under high pressure, to the inside and outside structural portions of the hen houses and to the litter on the floor. Particular attention was given to wetting such areas as those behind wall boards and timbers, under joists, studs, and roofing material, and in cracks. A spray containing 1% malathion, applied as described, gave complete control of

the fowl tick by the 49th day after application, following progressive decrease in the numbers of ticks present.

ROSENBERGER, G. (1956). Die Anwendung des Phosphonsäureesterpräparats "Neguvon-Bayer" gegen die Ektoparasiten des Rindes. **[Application of a phosphoric acid ester against ectoparasites of cattle.]** —*Dtsch. tierärztl. Wschr.* **63,** 429-431. **1808**

"Neguvon", also known as "L 13/59" (*o,o,* dimethyl-2,2,2-trichlorethyl phosponic acid ester), was administered by mouth to cattle as a single dose at 75–100 mg./kg. body wt. This treatment was effective against ticks, lice, mange mites and warble fly larvae, but had the disadvantages of imparting a smell and a taste to the milk of treated cows, and was occasionally toxic. Local application of a 0·5–1% soln. was therefore to be preferred for the treatment of these parasites, and it was claimed to be extremely effective. [See also *V.B.* **27,** 1136.]

—R.M.

See also absts. **1697-1698** (ixodid ticks transmitting brucellosis in sheep); **1731** (Dermacentor marginatus transmitting Nuttallia equi); **1732** (Babesia ovis in Rhipicephalus bursa); **1789** (ticks as disease vectors); **1939** (report, Ministry of Agriculture, Great Britain).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

WIBAUT-ISEBREE MOENS, N. L. (1956). Une méthode pratique pour détruire *L. truncatula* hôte intermédiaire de *Fasciola hepatica.* **[A practical method for the destruction of *L. truncatula* the intermediate host of *F. hepatica.*]**—*Riv. Parassit.* **17,** 77-90. [In French. English and Italian summaries.] **1809**

Finely powdered sodium chloride was applied for three years in succession in spring and again in July to drainage channels on pastures in a district in Holland for the eradication of *Limnaea truncatula.* Snails were said to die almost instantaneously when in contact with salt. The dosage was 15 kg./100 metres of channel.—E.G.

ENIGK, K. (1956). Die Bekämpfung des Leberegelbefalles. **[Control of the liver fluke.]**—*Dtsch. tierärztl. Wschr.* **63,** 425-428. **1810**

In the author's opinion control could only be achieved by destruction of the snail host. Experiments carried out in various parts of Germany showed that pentachlorophenol sodium was an effective molluscicide at a conc. of 0·2 p.p.m. in water, or as a 3 p.p.m. soln. for application to land. For the treatment of a hectare of land, 20 kg. of the drug dissolved in 600–1,200 litres of water were required, and the best time for application was the first half of April. The advantages and disadvantages of this treatment were discussed.—R.M.

BORAY, J. (1956). **Parenterally administered carbon tetrachloride to treat acute fasciolosis in sheep.**—*Acta vet., hung.* **6,** 469-473. [In English. Russian summary.] **1811**

673 sheep, mostly showing marked symptoms of acute fascioliasis were treated parenterally with carbon tetrachloride. About half the sheep (average weight 30 kg.) received 2 ml. s/c behind the left elbow. The remainder received 1 ml. per 10 kg. body wt. i/m into the thigh. Some animals in the latter group developed a slight limp followed by a mild stupor lasting 30–45 min. Marked improvement in appetite and condition occurred within a few days in contrast to untreated controls. The subsequent low incidence of chronic fascioliasis in the treated animals showed that the majority of young migrating flukes had been successfully eliminated. The drug was less effective when given *per os* or injected into the rumen.

—H. SCOTT MCTAGGART.

GRICE, H. C., HUTCHINSON, J. A. & SAY, R. R. (1957). **Obstructive jaundice ascribed to *Metorchis conjunctus* in a cat with a bifid gallbladder.**—*J. Amer. vet. med. Ass.* **130,** 130-132. [Authors' summary modified.] **1812**

In a cat with jaundice and anorexia it was found that the joint cystic duct and the ductus choledochus were blocked, presumably as the result of inflammatory processes initiated by a trematode parasite, *Metorchis conjunctus,* and possibly complicated by a bifid gall bladder.

BEARUP, A. J. (1954). **Schistosome dermatitis (surfer's itch).**—*Health, Canberra.* **4,** 83-86. **1813**

A number of cases of schistosome dermatitis, locally referred to as "surfer's or bather's itch", "pelican itch" or "Toukley itch" have occurred during recent years. Lesions have sometimes been confused with stings from "bluebottles" (a variety of jelly-fish). There are no human schistosomes in Australia, but there are several species in birds and it is their cercariae which are responsible for a dermatitis seen in swimmers and fishermen. Fork-tailed cercariae have been found in one species of snail, *Pyrazus autralis,* and adult trematodes

have been recorded from the silver gull (*Larus novae-hollandiae*) and the tern (*Sterna bergii*).
—H. McL. Gordon.

Bearup, A. J. (1957). **Schistosomes in the nasal passages of aquatic birds.**—*Aust. J. Sci.* **19,** 163. **1814**

Eggs similar to those produced by trematodes of the genus *Trichobilharzia* have been recovered from the nasal mucus of a duck in New South Wales. This genus may be quite common in birds, and may be responsible for schistosome dermatitis in Australia.
—R. I. Sommerville.

Gemmell, M. A. (1957). **Hydatid disease in Australia. I. Observations on the incidence of *Echinococcus granulosus* (Batsch 1786) (Rudolph 1805) in the dog in New South Wales.**—*Aust. vet. J.* **33,** 8-14. **1815**

This paper gives in detail a survey previously reported more briefly. [*V.B.* **27,** 1481.]
—R. I. Sommerville.

Oldham, J. N. & Beresford-Jones, W. P. (1957). ***Trichinella spiralis* in the wild red fox in England.**—*Brit. vet. J.* **113,** 34-35. **1816**

T. spiralis was found in a fox from Cornwall. Despite putrefaction and freezing of the carcass, the encapsulated larvae were viable, as was shown by feeding them to g. pigs. This is the first report of *T. spiralis* in the wild fox in England.—D. Poynter.

Bremner, K. C. (1956). **The parasitic life-cycle of *Haemonchus placei* (Place) Ransom (Nematoda: Trichostrongylidae).**—*Aust. J. Zool.* **4,** 146-151. **1817**

Worm-free calves were each infected with 250,000 *H. placei* larvae, and individuals were killed 26, 48 and 76 hours, and 10, 13 and 15 days thereafter. 36 hours after infestation more than 99% of larvae in the abomasum had exsheathed, and one was already in the fourth stage. Exsheathed third stage larvae had migrated into the pits of the gastric glands. Up to 48 hours after infestation there was no evidence of tissue reaction in the abomasum, but after 76 hours the mucosa showed slight hyperaemia and a catarrhal exudate. All larvae were then in the fourth stage and many had the head embedded in the gastric pits, and the greater part of the body coiled on the surface within the exudate. By the 10th day many larvae were coiled on the surface beneath blood clots. There was a generalized hyperaemia and some infiltration of mononuclears and a few eosinophiles. The pathology of the abomasum on the 13th day was similar to that on the 10th, but cellular infiltration was more intense. Adult worms were present and sections showed that there was some erosion of the mucosa caused by feeding of the adult worms. On the 13 and 15th days some worms were still in the early fourth stage. The prepatent period is about 11 days longer than that of *H. contortus*.—R. I. Sommerville.

Douvres, F. W. (1957). **The morphogenesis of the parasitic stages of *Trichostrongylus axei* and *Trichostrongylus colubriformis*, nematode parasites of cattle.**—*Proc. helm. Soc. Wash.* **24,** 4-14. **1818**

D. described the immature stages of the worms with special reference to the morphological features of value in identification and differentiation. The work was carried out by infecting 8 worm free calves which were killed 4–15 days later.—D. Poynter.

Douvres, F. W. (1957). **Keys to the identification and differentiation of the immature parasitic stages of gastrointestinal nematodes of cattle.**—*Amer. J. vet. Res.* **18,** 81-85. **1819**

Four valuable new keys are presented which cover 3rd and 4th stage nematodes of the abomasum and small intestine. They are based on easily discerned anatomical characteristics and are illustrated.—D. Poynter.

Gibson, T. E. (1956). **The hazards of parasitic gastro-enteritis in sheep running under conditions of intensive stocking.**—*Emp. J. exp. Agric.* **24,** 278-294. [Author's summary copied *verbatim*.] **1820**

A field experiment carried out over three successive seasons demonstrated that there is considerable danger from parasitic gastritis under conditions of intensive sheep grazing. It is clear that weather and management are important factors deciding whether disease breaks out or not. It is concluded that no set rules can be made on the desirable level of sheep-stocking but that every sheep-owner must himself experiment to decide the rate of stocking which under his own conditions gives maximum production with minimum hazard from parasitic disease.

Banks, A. W. (1956). **Internal parasites of sheep in South Australia. I. Studies in the Hills District, 1952 to 1955.**—*Aust. vet. J.* **32,** 313-320. **1821**

The internal parasites of fat lambs were studied over four consecutive seasons. The lambs were born in the late autumn in a winter rainfall region. A total of 9 genera were found and of these the principal were *Ostertagia*,

Trichostrongylus and *Nematodirus*. Infestations were light to moderate and in only 2 of a total of 75 lambs slaughtered were more than 12,000 worms present. Worm burdens were not directly related to nutritional conditions, being no more serious in bad seasons than in good. Lambs were infested in the first weeks of life, when all three principal genera appeared. However, *Nematodirus* was found later to be in greater numbers than *Ostertagia* or *Trichostrongylus*. Regular anthelmintic treatment did not appear to be necessary. Parasites are not a cause of the check in growth of lambs which is commonly observed in this region in spring.

—R. I. SOMMERVILLE.

GORDON, H. McL. (1957). **Studies on anthelmintics for sheep. Piperazine compounds.**—*Aust. vet. J.* **33**, 1-7. [Abst. from author's summary.] **1822**

Piperazine salts and piperazine-l-carbodithioic betaine were highly effective against *Oesophagostomum* spp. in sheep but had much less effect on *C. ovina* and *T. ovis*. Piperazine salts were not effective against *H. contortus* or *T. colubriformis* even when injected into the abomasum. Piperazine-l-carbodithioic betaine was effective against *H. contortus* only when injected or swallowed into the abomasum but was not generally effective against *T. colubriformis*. There was a striking differential efficiency against *Oesophagostomum* spp and *C. ovina*. The action of the piperazine compounds on *Oes. columbianum* is very rapid. The piperazines are independent of the oesophageal groove reflex and are effective when swallowed or injected into the rumen.

GORDON, H. McL. (1956). **The influence of particle size on the anthelmintic efficiency of phenothiazine in sheep.**—*Aust. vet. J.* **32**, 258-268. **1823**

Detailed results are given of experiments which suggested that there is an inverse relationship between particle size of phenothiazine and its efficiency against sheep nematode parasites. It is desirable that particle size of phenothiazine should not exceed 30 μ, but the optimum size is not known. *Oesophagostomum columbianum* may be less affected by changes in particle size than *Ostertagia* spp., *Trichostrongylus* spp., or *Haemonchus contortus*. It is unlikely that the greater efficiency of fine particles will permit reduction in the dosage rate. Some of the reported failures of phenothiazine may have arisen as a result of the presence of too high a proportion of coarse particles.

—R. I. SOMMERVILLE.

JARRETT, W. F. H., MCINTYRE, W. I. M. & URQUHART, G. M. (1957). **The pathology of experimental bovine parasitic bronchitis.**—*J. Path. Bact.* **73**, 183-193. [Authors' summary copied *verbatim*.] **1824**

An experimental study of the pathology of bovine parasitic bronchitis has been made in calves infected with *Dictyocaulus viviparus*, in single doses ranging from 5000 to 240,000 larvae. Animals were killed at intervals up to 90 days, and examined macroscopically and microscopically. All the lesions in the naturally occurring disease have been reproduced, and are described. Pulmonary lesions are found at 7 days, i.e., two weeks before the worms become adult and give rise to larvae in the faeces. There are 17 photomicrographs.

I. SOGOYAN, I. S. (1950). **[Experimental *Cystocaulus nigrescens* infestation in sheep. Lesions of the intestines.]**—*Trud. armyan nauchno-issled. vet. Inst.* **7**, pp. 127-139. [In Russian.] **1825**

II. SOGOYAN, I. S. (1955). **[Pathology and pathogenesis of *Cystocaulus nigrescens* infestation in sheep.]**—*Ibid.* **8**, pp. 167-177. [In Russian.] **1826**

I. Fifteen lambs, reared under worm-free conditions, were infected at the age of 4 months with infective larvae of the lungworm *C. nigrescens*, obtained from the snail host *Helix lucarum*. They were killed at intervals from 24 hours to 45 days after infection. Penetration of the wall of the digestive tract by infective larvae occurred mainly in the caecum and the first part of the colon, between 24 and 72 hours after infection. Macroscopic changes, visible the first day after infection, consisted of greyish lustreless nodules, the size of a pin's head or a millet seed. As the larvae penetrated the wall of the intestine, these lesions resolved, so that 20–45 days after infection very few nodules were seen. Larvae entered the mucous, submucous and muscular coats of the intestine, the vessels (mainly lymphatics), and the abdominal cavity. Migration of larvae to the lungs was by way of the abdominal cavity as well as through intestinal vessels.

II. Larvae of *C. nigrescens* reached the lungs 48 hours after infection; they were found in the walls of the alveoli. Growth of the parasite to sexual maturity was accompanied by the formation of miliary parasitic nodules, the size of a lentil or a pea; this commenced about 30 days after infection. By the 68th day of infec-

tion the tissue reaction consisted of exudative and proliferative inflammatory foci, with obliteration of alveoli.—R.M.

BOCH, J. (1956). Der Einfluss des Alters auf die Verwurmung von Hunden, Katzen und Füchsen. **[Influence of age on helminth infestation in dogs, cats and foxes.]**—*Z. Parasitenk.* **17**, 349-359. **1827**

Age appeared to have no influence on the incidence of cestodes in 171 dogs and 37 cats, neither was there resistance or immunity to reinfection at any particular age. *Strongyloides* and *Capillaria plica* were found in 131 foxes of all ages. Examination of 87 dogs and 32 cats showed that *Toxocara* was frequently eliminated spontaneously at the age of 8–9 months. Whether this phenomenon was associated with sexual maturity or due to immunological processes was not established.—E.G.

NEWTON, W. L. & WRIGHT, W. H. (1957). **A reevaluation of the canine filariasis problem in the United States.**—*Vet. Med.* **52**, 75-78. **1828**

In the U.S.A. microfilariae of the genus *Dipetalonema* may be found in the blood of dogs, and adults in subcutaneous tissues. The presence of microfilariae in blood does not therefore necessarily indicate heart worm infection. A table enabling differentiation of the adults and microfilariae of *Dirofilaria immitis* from those of *Dipetalonema* spp. is given.—D. POYNTER.

ANDERSON, R. C. (1956). **The life cycle and seasonal transmission of *Ornithofilaria fallisensis* Anderson, a parasite of domestic and wild ducks.** — *Canad. J. Zool.* **34**, 485-525. **1829**

The important vectors of *O. fallisensis* in Algonquin Park were probably *Eusimulium* spp. in late May and *S. rugglesi* in June 1955. Microfilariae reach the infective stage in the haemocoele of the flies in 1 to 2 weeks. There is a sausage stage followed by rapid growth and two moults. Infective third stage larvae accumulate in the heads of the flies. Third stage larvae were injected into ducklings, and microfilariae occurred 30 to 36 days later in blood from metatarsal veins. Microfilariae displayed diurnal periodicity.—G. K. SWEATMAN.

See also absts. **1643** (tuberculin test and fascioliasis); **1644** (pulmonary strongylosis and TB. in sheep); **1940** (report, Northern Ireland); **1945** (liver-fluke snails in Britain).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

KASZUBKIEWICZ, C. (1956). Obraz histologiczny pierwotnego raka płuc u 4-miesięcznego jagnięcia. **[Primary pulmonary carcinoma in a lamb.]**—*Weterynaria, Wroclaw.* **2**, 107-112. [In Polish. English and Russian summaries.] **1830**

Histologically the condition, in terminal bronchioles and some alveoli, resembled an adenoma or adeno-carcinoma. Most of the alveoli were filled with neoplastic cells which also invaded the blood vessels and lymphatics; the associated lymph nodes were not affected. K. compared these lesions with those of pulmonary adenomatosis (jaagziekte) and parasitic bronchitis.—M. GITTER.

NUTRITIONAL AND METABOLIC DISORDERS

BUSH, L. J., JACOBSON, N. L. & HARTMAN, P. A. (1957). **Levels of chlortetracycline in the rumen fluid of dairy calves following oral administration of the antibiotic.**—*Antibiot. & Chemother.* **7**, 9-12. [Spanish summary p. 46. Authors' summary modified.] **1831**

Calves, 11 to 21 weeks old, were used to determine the amount of chlortetracycline in the rumen fluid at various intervals after ingestion of the antibiotic and to determine whether previous antibiotic feeding had any influence on its rate of disappearance from the rumen fluid. No appreciable difference was found between the 3 calves that had previously received the antibiotic and the 3 that had not, as regards the level of chlortetracycline in the rumen fluid after oral administration of 40 mg. to each calf. The average amount of chlortetracycline per ml. of rumen fluid in the calves that had received it for one month previously was 0·43, 0·22 and 0·18 μg., and in the other 3 was 0·44, 0·24 and 0·16 μg., for samples taken 3, 6, and 9 hours after administration, respectively. Moreover, the chlortetracycline level probably fell sharply during the first 3 hours after administration.

ROBISON, W. L., KUNKLE, L. E. & CAHILL, V. R. (1956). **The use of an antibiotic in rations for hogs.**—*Res. Bull. Ohio agric. Exp. Sta.* No. 769. pp. 78. **1832**

Trials are described in which the growth of pigs given antibiotic in the food was compared with that of controls. The effects of vitamin B supplements and different levels of protein were also investigated. Except in the self-fed pigs on pasture, faster and more efficient growth was observed in the groups receiving antibiotic. The saving in food, however, was usually offset by the cost of the antibiotics.—M.G.G.

McDonald, M. W. (1956). **Feeding of detergents may have value in cockerel raising. Results of some early experiments.**—*Agric. Gaz. N.S.W.* **67**, 375-377. **1833**

A detergent (sodium tetra propylene benzene sulphonate) was added to an all-mash diet at the rate of 0·5% of 60% active concentrate, and cockerels were reared from day-old on this diet. Their growth rate was compared with that of groups receiving: (a) no supplement, (b) procaine penicillin, and (c) detergent + penicillin, until birds were 12 weeks of age. The detergent stimulated growth rate, but greater response was obtained in the detergent + penicillin group. The response although significant was not spectacular. In another experiment in which no response was obtained with penicillin the detergent also failed.—L. Hart.

Reber, E. F., Dees, D. E. & Schoettle, C. E. (1957). **The effects of cactus saponin administration to sheep and a cow.**—*Vet. Med.* **52**, 143-144. [Authors' summary modified.] **1834**

The administration of yucca cactus saponin by stomach tube to sheep resulted in reduced feed intake and distension of the rumen. 0·5–1 g. of saponin per lb. body wt. was toxic and caused death. The administration of the saponin through a rumen fistula to a cow resulted in reduced feed intake, increased water intake and distension of the rumen. 1·6 g. of saponin per lb. body wt. was toxic and caused the death of a cow. The distension of the rumen was believed to be due to relaxation of rumen muscles.

I. & II. Annicolas, D., Le Bars, H., Nugues, J. & Simonnet, H. (1956). Étude de la motricité du rumen chez les petits ruminants. VI. Influence de l'ingestion d'urée. VII. Influence de l'alimentation sur l'inhibition de la motricité du rumen provoquée chez le mouton par l'ingestion d'urée. **[Motility of the rumen in small ruminants. VI. Influence of urea ingestion. VII. Influence of diet on the inhibition of rumen motility caused by urea.]**—*Bull. Acad. vét. Fr.* **29**, 257-261 & 263-265. **1835**

I. Urea, administered by stomach tube into the rumen of sheep, had no effect on rumen motility at a dose of 0·1 g./kg. body wt. A dose of between 0·3 and 0·5 g./kg. reduced the frequency and the force of the contractions, and a dose of 0·5 to 2 g./kg. usually produced total inhibition.

II. Sheep receiving a diet poor in protein were more susceptible to the action of urea than sheep receiving a normal diet.

—D. S. Papworth.

Pierce, A. W., Moule, G. R. & Jackson, M. N. S. (1955). **The effect of thrice-weekly ingestion of urea on wool production by grazing sheep.**—*Qd J. agric. Sci.* **12**, 107-117. [Authors' summary modified.] **1836**

An account of two trials. The urea was incorporated in compressed rations containing ground wheat and molasses, or was given as a mixture with molasses. These supplements were given thrice weekly and, depending on the one used, the amount of urea offered on each occasion ranged from 25 g. to 45 g. In general, rations containing urea were unpalatable to sheep. Each of the urea supplements in the amount given was toxic. The feeding of urea did not lead to increased wool production.

Kratzer, O. (1955). Über die Brauchbarkeit von in der Futtermittelindustrie verwendeten Mischmaschinen zur Untermischung von Wirkstoffen unter hohen Mischverhältnissen. **[Ability of commercial food mixing machines to produce homogeneous mixtures containing trace substances.]**—*Inaug. Diss., Munich.* pp. 66. **1837**

K. studied the efficiency of 2 small horizontal mixing machines, one with a capacity of 50 litres and the other of 150 litres. As trace substances he used vitamin A preparations, lucerne meal, and common salt. Chemical analysis of 5 g. samples of the finished products revealed that 15 min. was sufficient for mixing the substances into various foodstuffs in a ratio of 1:200. The mixing process had no harmful effect on the stability of synthetic trace substances, but milling resulted in a loss of 15% of the vitamin A content. It was shown that a little moisture or fat helped to maintain the homogeneity of the mixture.—M.G.G.

Götze, R. (1957). Die Nutzbarkeit der Steinkohlenflugasche zur Mineralstoffversorgung der Haustiere. **[Coal ash from chimney**

smoke as a source of minerals for domestic animals.] — *Dtsch. tierärztl. Wschr.* **64,** 25-27. **1838**

Flue dust obtained from the filter of a coal-burning furnace was fed to dairy cattle on 2 farms away from any large industrial area. Each of the 50 cows in the first herd received 50 g. daily for 11 months. No harmful effects were observed, there was no enteritis, and fertility was above average. The 16 cows in the second herd each received 200–250 g. daily for 3 months. Within 14 days of the beginning of the trial 12 of 14 cows conceived to the first insemination. In the preceding year 7 cows had required 20 inseminations. Further trials are being conducted in 25 herds whose fertility is unsatisfactory. A striking improvement has already appeared in the herds affected with nutritional sterility.—M.G.G.

WALSH, T., FLEMING, G. A., KAVANAGH, T. J. & RYAN, P. (1955-56). **The cobalt status of Irish soils and pasture in relation to pining in sheep and cattle.**—*J. Dep. Agric. Republ. Ireland.* **52,** pp. 56-116. **1839**

Of 1,740 soil samples from selected widely scattered areas in the Republic of Ireland about 65% were deficient or near deficient in cobalt (below 5 p.p.m.). Of the remainder only about 7% contained more than 10 p.p.m. A clear cut relationship is shown to exist between the cobalt status of the soil and cobalt deficiency problems in livestock. Herbage values above 0·1 p.p.m. are regarded as satisfactory. Those below 0·08 p.p.m. give rise to "pine" in sheep, while those below 0·05 p.p.m. give rise to "pine" in cattle as well. The areas chiefly affected by deficiency were found to be in Counties Carlow, Wicklow, Kerry, Galway (Connemara), Mayo, Sligo, Donegal and Waterford. The main cobalt-deficient soils were those found on parent materials consisting of Calcareous sands, Granite, Old Red Sandstone, Mica-schist and Quartz, Blanket Peat and to a lesser extent Silurian and Avonian Shales.—H. SCOTT MCTAGGART.

KRISS, J. P., GREENSPAN, F. S., CARNES, W. H. & LEW, W. (1956). **Alterations in chick thyroid function induced by cobalt.** — *Endocrinology.* **59,** 555-564. **1840**

Iodine and phosphorus uptake and colloid depletion after administration of thyrotropic hormone (TSH), cobalt or propylthiouracil, were studied in day-old chicks. TSH caused colloid depletion and an increased uptake of I^{131} and P^{32}. Cobalt suppressed I^{131} uptake, stimulated P^{32} and, even in large doses, failed to cause colloid depletion. Simultaneous administration of cobalt and TSH did not affect the P^{32} uptake, but, at certain dose levels, inhibited the I^{131} response and colloid depletion usually caused by TSH. Results of studies on propylthiouracil and triiodothyronine seem to indicate that the effect of cobalt on P^{32} uptake is not due to stimulation of endogenous TSH secretion. It is concluded that cobalt acts directly on the thyroid cell causing, simultaneously, inhibitions of endocrine function and increased P^{32} uptake; it is also considered that cobalt may be goitrogenic within a certain dosage range—high enough to block iodine uptake without blocking the colloid depletion induced by TSH.

—T.E.G.R.

MOTZOK, I., ARTHUR, D. & BRANION, H. D. (1956). **Utilization of phosphorus from various phosphate supplements by chicks.**—*Poult. Sci.* **35,** 627-649. **1841**

The availability of 27 phosphate supplements was tested on chicks up to 5 weeks of age on a diet having a total phosphorus content of 0·49% and an inorganic phosphorus content of 0·17%. A comparative study of the different phosphorus samples was based on the percentage of bone ash and on the body weight of the birds at 5 weeks of age.—T.E.G.R.

KÖHLER, H. (1956). Neuere Erkenntnisse bei der Anämie der Ferkel. **[Recent knowledge about piglet anaemia.]** — *Dtsch. tierärztl. Wschr.* **63,** 431-434. **1842**

Piglet anaemia is common in Germany. In many cases death results from a superimposed condition, *e.g.* bronchopneumonia, toxic liver dystrophy, enteritis, etc. The anaemia, however, may be regarded as the primary cause since it increases susceptibility to other diseases. Changes in the bone marrow indicative of a hypochromic anaemia, together with a disturbance in the production of serum albumin and γ-globulin are present.—J. A. NICHOLSON.

I. NEUMANN, H. -J. (1957). Die Zink-Therapie in Schweinebeständen mit Parakeratose. **[Treatment of parakeratosis in pigs with zinc.]**—*Prakt. Tierarzt.* No. 1. pp. 6-7. **1843**

II. NEUMANN, H. -J. & MICHNA, A. (1957). Die Zink-Therapie in Schweinebeständen mit Parakeratose. **[Treatment of parakeratosis in pigs with zinc.]**—*Ibid.* No. 2. pp. 33-37. **1844**

I & II. The authors successfully treated parakeratosis in pigs by oral administration of zinc carbonate. They recommended these dosages: in mild cases 0·2 g. daily to each animal for 4–5 weeks; in advanced cases 0·5 g. for 3–4 weeks; and in the most serious cases

0·75 g. for 3 weeks. Toxic symptoms appeared after 4 weeks in pigs that continued to receive 1 g. daily after recovering from parakeratosis.
—M.G.G.

GARTNER, R. J. W. & RYLEY, J. W. (1956). **Vitamin A in poultry. A survey of liver vitamin A reserves in fowls and their relationship to diseases.**—*Qd J. agric. Sci.* **13,** 1-12. **1845**

Livers of 313 fowls from 162 flocks in Queensland were analysed for vitamin A. Liver levels of vitamin A from 0–2 μg./g. were recorded in 16% of the fowls; 10·5% had levels between 2+ and 10 μg./g., and the remaining 73·5% had levels that were considered normal. All fowls with "pustules" in the oesophagus had liver levels of 0–2 μg./g. In the age group to 6 weeks, 19 chickens had liver levels of 0–2 μg./g. and of these only 2 showed lesions of vitamin A deficiency. There appeared to be no correlation between any of the diseases encountered and liver storage levels except that there was a high incidence of vitamin A deficiency in *Ascaridia* infestations. Newly hatched, healthy chicks from eggs laid by hens adequately supplied with vitamin A showed a mean liver storage level of 19·7 μg./g.—L. HART.

FELL, H. B., MELLANBY, E. & PELC, S. R. (1956). **Influence of excess vitamin A on the sulphate metabolism of bone rudiments grown *in vitro*.** — *J. Physiol.* **134,** 179-188. **1846**

Autoradiography was used to study the influence of excess vitamin A on the sulphate metabolism of chick long bone rudiments grown *in vitro* by the watch-glass method. The results indicate that vitamin A inhibits the synthesis of new cartilage matrix and causes the dissolution of that already formed. It is suggested that under the influence of vitamin A the cartilage cells produce an enzyme which results in the formation of soluble sulphated mucopolysaccharide instead of the normal chondroitin sulphate.—J. A. NICHOLSON.

FROST, D. V., PERDUE, H. S. & SPRUTH, H. C. (1956). **Vitamin K activity of menadione sodium bisulfite in chickens.**—*J. Nutr.* **59,** 181-196. **1847**

Day-old chicks were used for comparative studies of the vitamin K activity of menadione (menaphthone, B. Vet. C.) and menadione sodium bisulphite. Blood clotting time was used as a criterion of vitamin activity. Different dietary regimens were used in some experiments but it was concluded that, irrespective of diet, the sodium bisulphite preparation was about three times as effective as menadione as a sole source of vitamin K. Sulphaquinoxaline at the unusually high level of 0·1% increased the requirement for vitamin K markedly, but the increase was disproportionately higher with menadione than with the sodium bisulphite preparation. The addition of 2 to 4% animal fat to the low fat diets did not consistently improve utilization of either form of the vitamin.
—D. S. PAPWORTH.

MODI, V. V. & OWEN, E. C. (1956). **Riboflavin in milk.**—*Nature, Lond.* **178,** 1120. **1848**

Analyses showed that both free riboflavin and flavin adenine dinucleotide are present in milk from cows, goats, ewes and rabbits, whereas only flavin adenine dinucleotide is present in human, mares' and sows' milk. Xanthine oxidase is absent from these milks, but is present in milk from the first four species.
—J. A. NICHOLSON.

VOHRA, P., LANTZ, F. H. & KRATZER, F. H. (1956). **The effect of folic acid and vitamin B_{12} on the synthesis of serine and choline from glycine in the liver of young turkey poults.**—*J. biol. Chem.* **221,** 501-507. **1849**

Livers from normal, folic acid-deficient, and vitamin B_{12}-deficient turkey poults were incubated with glycine-2-C^{14}. Results suggested that vitamin B_{12} functions in the conversion of the α-carbon atom of the glycine to a single carbon unit which may be used both for methyl synthesis, and for conversion to hydroxymethyl tetrahydrofolic acid.—D. S. PAPWORTH.

BRÜCKNER-KORTSSON, H. (1956). Massnahmen zur vorbeugenden Behandlung der rezidivierenden Azetonämie des Rindes. **[Preventive treatment of recurrent ketosis in cattle.]** —*Tierärztl. Umsch.* **11,** 441-442. **1850**

From case histories of ketosis in dairy cattle, collected in Iceland over 5 years, the author concluded that there is a hereditary predisposition to the disease. About 80% of the cows affected were of a Red-Pied breed, although other breeds were present in the district in similar numbers. He suggested prevention by genetic selection and by a diet rich in sugar. Details were given of treatment with A.C.T.H., administered s/c. [See also *V.B.* **22,** 3789.]
—E.G.

LINK, R. P., NEWTON, D. I. & HUBER, W. G. (1957). **The use of prednisolone in bovine ketosis.**—*J. Amer. vet. med. Ass.* **130,** 137-140. [Authors' summary modified.] **1851**

Prednisolone ("Sterane") has advantages

over some types of treatment for ketosis because of ease of administration and rapid physiological effect. The dosage employed ranged from 50 mg. to 100 mg. Blood glucose values increased rapidly after treatment, and there was a decrease in the ketone bodies. 27 out of 32 cows with uncomplicated ketosis recovered after a single treatment.

See also abst. **1944** (book, minerals in pasture).

DISEASES, GENERAL

LIÉGEOIS, F. (1956). Le mal der mer chez les animaux. [**Sea sickness in animals.**]—*Rev. Path. gén.* **56,** 1831-1849. Discussion: pp. 1849-1851. [English and Spanish summaries. English summary modified.] **1852**

Dogs are subject to motion sickness and benefit from administration of dimenhydrinate ("Dramamine"). Pigs, sheep, cattle and horses are not affected, although abortion is frequent among mares at sea.

I. CHIESA, A. L. (1956). Cremasterectomía en el equino P.S.C. [**Section of the cremaster muscle in racing stallions.**] — *Gac. vet., B. Aires.* **18,** 115-120. **1853**

II. CAMBEROS, H. (1956). Valor de la cremasterectomía. [**Section of the cremaster muscle in racing stallions.**]—*Ibid.* 120-125. **1854**

I. A condition observed in the entire racehorse is described. The animal pulls up suddenly during a race and adopts a characteristic stance with the testicles drawn right up to the external inguinal ring. There is stiffness of the hind legs, and pressure on the lumbar region or lifting of either of the hind legs causes retraction of the testicle on the corresponding side. Therapeutic measures proved ineffective, but resection of the external cremaster muscle gave good results.

II. The condition referred to in the preceding abst. is considered to be a reflex action due to some painful stimulus to the cremaster nerve through inflammatory conditions of muscles and joints in the hind quarters, or injury to the lumbar vertebrae involving the nerve itself. It is, therefore, argued that treatment should be primarily directed towards these conditions. The value of resection of the external cremaster muscle is discussed and the conclusion is arrived at that the operation has limited indications and, when performed, prognosis is by no means favourable. A general discussion followed.—T.E.G.R.

FORENBACHER, S. (1956). Über die Rolle der neuro-hormonalen Regulation bei der Entstehung der paralytischen Myoglobinurie des Pferdes. [**Importance of neuro-hormonal regulation in the pathogenesis of paralytic myohaemoglobinaemia in the horse.**]—*Zbl. VetMed.* **3,** 613-640. [English, French and Spanish summaries. Abst. from English summary.] **1855**

In the acute stage of paralytic myohaemoglobinaemia F. demonstrated a series of clinical and biochemical changes which indicated that the animal was in the "alarm state" described by Selye. Special attention was paid to changes in carbohydrate metabolism, interchange of electrolytes, morphological changes in the blood, changes in the balance of vitamin C and the excretion of 17-ketosteroids in the urine. By using a large number of clinical cases and experimental horses, resistance to insulin and the action of adrenaline, A.C.T.H., glucocorticoid and mineral corticoid hormones was studied.

It was found that rest in the stable and the feeding of materials rich in carbohydrates caused a latent disturbance of carbohydrate metabolism and of the neuro-hormonal equilibrium in experimental horses. When animals in this state were subjected to stress by sudden muscular activity, they developed typical symptoms of paralytic myohaemoglobinaemia.

I. BOSANQUET, F. D., DANIEL, P. M. & PARRY, H. B. (1956). **Myopathy in sheep. Its relationship to scrapie and to dermatomyositis and muscular dystrophy.**—*Lancet.* **271,** 737-746. **1856**

II. BLAXTER, K. L. & MACDONALD, A. M. (1956). **Myopathy in sheep.**—*Ibid.* 895. **1857**

III. HOLMAN, H. H. & PATTISON, I. H. (1956). **Myopathy in sheep.**—*Ibid.* 895-896. **1858**

I. A comprehensive study was made of degeneration of skeletal muscle (myopathy) in 439 adult sheep of various breeds. Many of the affected sheep had been suffering from scrapie.

The muscle changes noted were enlargement and extreme pallor of whole muscles; small foci of pallor, widely disseminated in skeletal muscles; generalized wasting of skeletal muscles; or an unusual firmness of muscle without wasting. The various forms of muscle change may be found in the same animal.

Papillary eruption with some lightening of hair colour was seen on the skin and the adrenal glands were invariably enlarged. No obvious loss of anterior horn cells was seen in

the spinal cord nor were inclusion bodies, foci of nerve cell degeneration or perivascular cuffing observed. The disease usually lasted 4–6 months and treatment was without effect. It appears to be a polymyositis resembling muscular dystrophy in man. It is suggested that many cases of scrapie are but a part of a more widely occurring myopathy, possibly of hereditary origin.

II. Muscular degeneration seen in three flocks of sheep is considered to be identical with experimental muscular dystrophy in the calf and with naturally occurring enzootic muscular dystrophy in beef cattle. These myopathies appear comparable with disease reported in sheep by Bosanquet *et al.* Both experimental and enzootic myopathy can be prevented, but not cured, by administration of vitamin E.

III. An association between the presence of vacuolated cells in sections of the medulla oblongata and the occurrence of clinical symptoms of scrapie is recorded. However, the finding of vacuolated cells cannot be accepted as being pathognomonic of the disease.

—J. A. Nicholson.

Switzer, W. P. (1956). **Studies on infectious atrophic rhinitis. V. Concept that several agents may cause turbinate atrophy.**—*Amer. J. vet. Res.* **17,** 478-484. [For previous parts, see *V.B.* **25,** 3348 & **26,** 2234.] **1859**

Atrophy of the turbinate bones and, in some cases, pneumonia occurred in test pigs to which filtrates of suspensions of affected turbinates had been administered intranasally. *Pasteurella septica* and *Alcaligenes* spp. isolated from atrophic turbinates were also capable of producing the disease. Instillation of acetic acid also caused atrophy. It is, therefore, considered that the condition may be be caused by a number of unrelated agents.—T.E.G.R.

Behn, P. (1956). Der Herztod der Schweine—eine Kochsalz-Mangelkrankheit? **[Fatal syncope in pigs—a sodium chloride deficiency?]** —*Mh. VetMed.* **11,** 560-562. **1860**

A feeding experiment was carried out in a piggery where there had been an outbreak of fatal syncope during which about 30% of all weaned piglets had died. The 99 survivors were kept on a diet similar to that fed before the outbreak, but 47 of them were given sodium chloride supplements amounting to about one handful for every pen holding 15–20 pigs. Of those receiving salt supplements one died from fatal syncope the first day of the experiment. Of those on the practically salt-free diet, eight died. After that salt supplements were given to all pigs and no further deaths occurred.—E.G.

Griem, W. (1956). Ein Beitrag zu den pathologisch-anatomischen Veränderungen des Herzens beim enzootischen Herztod. **[Pathological changes of the heart in fatal syncope.]** —*Mh. VetMed.* **11,** 245-248. **1861**

G. described inflammatory and degenerative lesions in the left ventricle in 34 of 39 pigs with fatal syncope. Histologically these lesions were particularly marked in the subendocardial muscular layers and were associated with adrenocortical insufficiency.—E.G.

Goodwin, R. F. W. & Palmer, A. C. (1956). **Trembling in newborn pigs.**—*Proc. R. Soc. Med.* **49,** 979-980. **1862**

The authors have carried out selective matings in pigs and consider that the disease is not hereditary. They observed that trembling affected the muscles of the head and limbs but not those innervated by the cranial nerves. Nerve cells were examined and appeared normal.—M.G.G.

Moegle, H., Boguth, W. & Bierbaum, A. (1956). Serumeiweissuntersuchungen bei nierenkranken Hunden unter besonderer Berücksichtigung des nephrotischen Syndroms. **[Studies on serum proteins in dogs with renal disease, with special reference to the nephrotic syndrome.]**—*Zbl. VetMed.* **3,** 662-696. [English, French and Spanish summaries.] **1863**

The nephrotic syndrome in man is defined by a very high amount of protein in the urine, decrease in blood proteins, lipaemia and lipoiduria, and a tendency towards ascites. With paper electrophoresis of serum the syndrome is characterized by hypoproteinaemia with a fall in albumin and γ globulin, and a rise in α_2 and β fractions. Sera from 63 dogs with kidney disease were examined by electrophoresis. Only 7 of the sera showed changes typical of the nephrotic syndrome.—R.M.

Schulze, W. & Habura, D. (1956). Die Behandlung der eosinophilen Myositis des Hundes mit Dextran bzw. Macrodex. **[Treatment of myositis eosinophilica in dogs with dextran and "Macrodex".]**—*Mh. VetMed.* **11,** 563-566. **1864**

An account of treatment of eosinophilic myositis in 12 Alsatian dogs by intravenous administration of large doses of plasma substitutes. The main symptoms subsided within a few hours after treatment and within 3–5 days

the dogs appeared clinically normal. This treatment had, however, no effect on the blood picture.—E.G.

SARAJAS, H. S. S. (1956). **Evidence for heart damage in association with systemic hypothermia in dogs.**—*Amer. Heart J.* **51,** 298-305. [In English. Interlingua summary. Abst. from author's summary.] **1865**

Of 24 dogs subjected to systemic hypothermia, 9 were killed at the onset of fatal cardiac irregularities or at the termination of moderate (26° to 27°C.) or deep (21° to 22·5°C.) hypothermia of one to four hours' duration, and were examined P.M., the heart being examined histologically. In all these 9 the myocardium showed, histogically, foci of necrotic muscle fibres with an occasional cellular reaction. Of the other 15, which were killed and examined P.M. three days to three years after survival of moderate or deep hypothermia of the same duration, distinct areas of necrosis in various stages of organization were detected in 13. S. dicussed the nature and the aetiology of the lesions, and their functional significance.

POMMER, A. (1956). Die Röntgendiagnostik und Therapie der Prostataerkrankungen des Hundes. [**X-ray diagnosis and treatment of diseases of the prostate gland in dogs.**] — *Berl. Münch. tierärztl. Wschr.* **69,** 453-457. [English summary.] **1866**

Radiographic techniques for the diagnosis of diseases of the prostate gland in dogs were described. Over a period of 10 years 314 dogs with prostatic hypertrophy were examined. In 5 there was sarcoma, in 9 carcinoma, in 8 cysts and calcium deposits, in 61 urinary concretions. In 98 retention of urine had caused inflammation and erosion of the mucosa of the bladder and thickening of the wall.

Details were also given of X-ray therapy of catarrhal and purulent prostatitis and hypertrophy, alone or combined with 20,000—40,000 i.u. of penicillin/kg. body wt., daily for 3–5 days. Of 46 dogs with soft, painful, and 34 with hard painless hypertrophy treated by this method, in 52 there was marked lasting improvement, 10 were refractory and in the remainder treatment was discontinued.—E.G.

BAUMANN, R. (1956). Der Fettkalkinfarkt der Niere des Hundes und der Katze. [**Fatty calcareous infarction in the kidney of dogs and cats.**]—*Wien. tierärztl. Mschr.* **43,** 594-596. [English, French and Italian summaries.] **1867**

Fatty calcareous infarcts are frequently seen in kidneys from dogs and cats. They can be examined in unstained sections by means of the polarizing microscope with crossed Nicol prisms. They occur in Henle's loop probably as a result of faulty secretion due to an interstitial nephritis.—J. A. NICHOLSON.

WOODS, J. W. (1956). **'Taming' of the wild Norway rat by rhinencephalic lesions.** — *Nature, Lond.* **178,** 869. **1868**

Of 42 wild rats in which bilateral amygdaloid lesions were produced surgically or electrolytically, 11 reverted to their pre-operative aggressiveness after a few days or weeks and the rest remained tame for long periods (up to 3 years). The brains of 7 of the rats which remained tame for 3 months or more were examined. In no case was there evidence of complete destruction of the amygdala; damage was restricted to rhinencephalic structures.

—T.E.G.R.

SIMON, S. (1956). **Comparative studies of dextran and polyvinylpyrrolidone preparations in ischaemic cats.**—*Acta physiol. Acad. Sci. hung.* **10,** 268-277. [In English. Russian summary.] **1869**

Recording blood pressure, and the measurement of haemodilution and of lethal re-bleeding volume, were used to compare the efficiency of various preparations (including British products) of dextrans and polyvinylpyrrolidone, in anaesthetized cats rendered hypotensive by standard severe haemorrhage of 25 ml./kg. All preparations, in doses equivalent in volume to the blood loss, raised the blood pressure, but whereas this was maintained adequately over 3 hours using dextran, the blood pressure fell significantly after 1½ hours with all except one of the polyvinylpyrrolidone preparations. 10% dextran solution was more efficient in raising the blood pressure than the 6% strength usually employed. No significant differences were detected between any of the preparations in their effect on haemodilution. When lethal re-bleeding volume was compared 10% dextran solution was superior, otherwise no significant differences were established. The results are discussed briefly in relation to particle size.—R. J. FITZPATRICK.

BERDJIS, C. C., KALLMAN, R. F., KOHN, H. I. & DE OME, K. B. (1956). **Late effects of whole-body X-irradiation on the mouse. II. Histologic observations.**—*Radiation Res.* **5,** 470. **1870**

Some atrophy of the germinal epithelium, slight changes in Leydig cells, and arterial lesions were observed in the testes. Partial or

total atrophy of the ovaries was common and there was progressive tumour formation in the ovaries and other tissues. There were no marked changes in the livers and hearts to account for the reduction of weight of these organs in the males. The kidney glomeruli in the females showed a tendency to "masculinization." Nephrosclerosis, sometimes accompanied by scar formation, was common. Renal adenomas with well defined pathogenesis occurred in about 8%. The frequency of lymphatic tumours increased with post-irradiation time, particularly in females. No mammary tumours occurred. There was marked proliferation of the glomerular zone of the adrenal cortex.—T.E.G.R.

LANGHAM, W., WOODWARD, K. T., ROTHERMEL, S. M., HARRIS, P. S., LUSHBAUGH, C. C. & STORER, J. B. (1956). **Studies of the effect of rapidly delivered, massive doses of gamma-rays on mammals.**—*Radiation Res.* **5**, 404-432. **1871**

Numerous rats and mice and 62 monkeys were exposed to gamma-rays emitted at a rate of 1,000—6,500 r./min. from a mixture of radioactive barium and lanthanum. Each animal was exposed once to from 1,000 to 200,000 r. The syndrome of acute radiation illness could be divided into 4 phases: (1) acute ataxia beginning immediately after exposure to high doses and lasting for 5–10 min.; (2) lethargy; (3) excitement with convulsions; (4) terminal hypothermia. There are details of changes in the blood picture and composition, and of some biochemical changes, also of the effect of cysteine on survival.—R.M.

ARNOLD, J. S. & JEE, W. S. S. (1956). **Radioautographic and pathologic changes in bone of dogs receiving Pu^{239} and Ra^{226}.**—*Radiation Res.* **5**, 467. **1872**

Skeletal changes in dogs after i/v administration of plutonium are described. The element first collected under the endosteal surface and at 2 weeks there was marked swelling, vacuolation and fragmentation of the surface cells. At 4 weeks the endosteum was virtually denuded of cells, there were haemorrhages in the bone marrow and destruction of the haemopoietic elements. At 1 and 1½ years there was marked fibrosis of the endosteal surface, with islets of regenerated haemopoietic elements and the greater part of the Pu^{239} was still present on the calcified surfaces of the trabeculae and under the fibrous tissue while relatively little was to be found under calcified bone; the macrophages contained about 10%. At 1½ years there was extensive destruction of osteocytes resulting in fractures of the ribs and long bones. Radium, 10 μc/kg. body wt., was administered to 3 dogs which were examined 490, 908 and 1073 days later. Osteolytic and osteogenic sarcomas were found in the 2nd and 3rd respectively. Skeletal changes were similar to those seen at an earlier period with Pu^{239} but fibrosis was more irregular and there was necrosis of the Haversian systems and bone resorption was greater; irradiation was more irregular and much of the activity was buried in trabecule.—T.E.G.R.

HOLSTI, P. (1956). **Experimental cirrhosis of the liver in rabbits induced by gastric instillation of desiccated whole bile.**—*Acta path. microbiol. scand.* Suppl. No. 113, pp. 67. [In English.] **1873**

This supplement presents a review of previous work by the author, and then describes studies made on the effects on rabbit liver of gastric instillations of a carcinogen (9,10-dimethyl-1,2-benzanthracene), preheated lipids, lard and cholesterol, a pancreas preparation and a desiccated whole bile preparation. These substances were administered in combinations, or alone. Various methods were used during the investigation on a total of 300 adult rabbits of mixed strain. Only the combinations containing the desiccated whole bile preparation and only the bile preparation given alone (daily dosage 0·16 g.) induced liver cirrhosis. The gross changes were present in a few weeks and advanced cirrhosis developed in about 3 months. Histologically the lesions were present after a week.—D. S. PAPWORTH.

PRUNTY, F. T. G. (1956). **Chemical and clinical problems of the adrenal cortex.** —*Brit. med. J.* Sept. 15th, 615-622; Sept. 22nd, 673-686. **1874**

This is the Humphrey Davy Rolleston lecture given by the author at the Royal College of Physicians. P. reviewed the chemical background of the cortical hormones, and by liberal reference to case histories and experimental work emphasized the clinical uses of various types of hormones and operative treatments.

—D. S. PAPWORTH.

See also absts. **1672-1673** (oedema disease and E. coli); **1939** (report, Ministry of Agriculture, Great Britain).

POISONS AND POISONING

MARSHALL, D. R. & TODD, J. R. (1957). **A case of acute copper oxychloride poisoning in cattle.**—*Vet. Rec.* **69,** 77-78. [Authors' summary slightly modified.] **1875**

Two steers died after ingesting a quantity of copper oxychloride estimated to be about 2½ oz. each. P.M. and laboratory findings indicated that the copper was not absorbed and that the cause of death was an acute enteritis.

GORDON, W. A. M. & LUKE, D. (1957). **Copper poisoning in the pig.**—*Vet. Rec.* **69,** 37. **1876**

Copper poisoning is described in four bacon pigs of which three died. Diagnosis was based on finding a concentration of copper in the liver of 2,500 p.p.m. Bacteriological investigation gave negative results. Symptoms included yellowing of the skin, loss of appetite, incoordination, constipation, haematuria and high temperature. Lesions found P.M. included generalized icterus, enlarged spleen and enlarged haemorrhagic kidneys. The authors discussed the dangers of copper poisoning of pigs arising from the use of copper sulphate as a dietary supplement.—R. J. FITZPATRICK.

O'MOORE, L. B. (1956). **Lead poisoning in cattle.**—*Irish vet. J.* **10,** 194-202. **1877**

The more sensitive and rapid methods of lead estimation have now made possible routine analysis of P.M. and other specimens. Such analyses show that the concentration of lead is very much greater in the kidney cortex than in other tissues. Experimentally it was found possible to produce lead poisoning in two calves by administration of lead acetate. One calf received 1,600 g. over a period of 35 months when it died without showing typical symptoms of lead poisoning. The second calf received a total of 396 g. over a period of 10 months when it died with typical symptoms of acute lead poisoning. The intravenous injection of the chelating agent "Calcium Versenate" (sodium calcium edetate) is recommended as being the best method of treatment.—J. A. NICHOLSON.

REMY, R. (1956). Tierexperimentelle Untersuchungen zur Bleivergiftung. I. Toxikologie. II. Therapie und Prophylaxe. [**Experimental lead poisoning. I. Toxicology. II. Treatment and prophylaxis.**]—*Dtsch. tierärztl. Wschr.* **63,** 385-388; 405-409. **1878**

I. Studies of experimental lead poisoning in rabbits and rats showed that the failure of erythropoiesis is the cause of many of the symptoms. The disturbance of cell metabolism results from a failure of nucleic acid synthesis.

II. Vitamin B_{12} had a beneficial effect on erythropoiesis in acute lead poisoning. The amino-acids cysteine and methionine were also found to be of benefit in acute cases of poisoning from their stimulating effect on the enzyme systems inactivated by lead. None of these substances is of benefit in chronic lead poisoning, nor do they influence the excretion of lead. British anti-lewisite had no effect on lead excretion, but promising results were obtained with sodium calcium edetate.—J. A. NICHOLSON.

TODD, J. R. (1957). **Notes on the use of calcium versenate in acute lead poisoning.**—*Vet. Rec.* **69,** 31-32. **1879**

"Calcium Versenate" (sodium calcium edetate) was used in acute lead poisoning in two calves, a bullock, a heifer and a donkey. Symptoms included blindness, nervousness, tongue paralysis, muscle twitching and depression. Diagnosis was confirmed chemically in all cases. Calcium Versenate diluted in saline was given intravenously in single total doses varying from 3 to 6 g. depending on size of animal. Oral magnesium sulphate was not given. All the animals recovered except one calf which died shortly after treatment. General recovery occurred in a matter of hours although some tongue paralysis persisted over 3 days and blindness up to 10 days. The authors point out that the efficiency of this treatment is probably related to the total amount of lead absorbed and stored in the body, and that therefore a second treatment may sometimes be necessary.—R. J. FITZPATRICK.

DESCHIENS, R., BERTRAND, D. & ROMAND, R. (1956). Sur la toxicité et la dose médicamenteuse de chlorure stanneux pour le cobaye, le lapin et la souris. [**Toxicity and therapeutic dosage of tin chloride in g. pigs, rabbits and mice.**]—*C. R. Acad. Sci., Paris.* **243,** 2178- 2180. **1880**

Tin chloride was lethal when given by i/m inj. at 40–60 mg./kg. daily for 6 days. A safe dosage, such as might be employed in the treatment of schistosomiasis, was 4 mg./kg., administered by daily i/m inj. for up to 8 consecutive days.—R.M.

MAGEE, P. N., STONER, H. B. & BARNES, J. M. (1957). **The experimental production of oedema in the central nervous system of the rat by triethyltin compounds.**—*J. Path. Bact.* **73,** 107-124. [Authors' summary copied *verbatim.*] **1881**

The toxic action of triethyltin compounds on the central nervous system has been studied

in the rat by histological and biochemical methods. These substances produce a striking interstitial oedema of the white matter of the brain and spinal cord without obviously damaging the neurones. The lesion is reversible.

TOPCHYAN, M. S. & AVERYANOVA. K. G. (1955). **[Toxicity of ammonium nitrate for animals.]** —*Trud. armyan. nauchno-issled. vet. Inst.* **8**, pp. 179-185. [In Russian.] **1882**

Administered by mouth as a single dose, ammonium nitrate was toxic for sheep and rabbits at 2 g./kg. body wt., causing death ½–17 hours after administration. A single dose of 1–1·5 g./kg. was tolerated. With repeated doses, no deaths occurred when it was given for 30 days at 0·25 g./kg. or for 10 days at 0·5 g./kg. In further experiments the sheep had been kept on a ration free from salt for 6 weeks. A single dosage of 1·5 g./kg. was toxic for these sheep, but 1 g./kg. was not; repeated doses of 0·5 g./kg. daily for up to 30 days were lethal for salt-starved sheep after 4–8 days, but not 0·25 g./kg.

Ammonium nitrate was excreted in the urine. It was detected in the urine and tissues by its reactions with ferrous sulphate and diphenylamine. The lesions of acute poisoning were hyperaemia of the organs, and haemorrhages. Chronic poisoning was characterized by swollen and hyperaemic mucous membrane of the abomasum and catarrhal inflammation of the small intestine. Under farm conditions, poisoning occurred only as a result of negligent storage and distribution of ammoniacal fertilizer. —R.M.

ANNICOLAS, D., LE BARS, H., NUGUES, J. & SIMONNET, H. (1956). Toxicité de l'urée chez les petits ruminants. **[Toxicity of urea for sheep.]**—*Bull. Acad. vét. Fr.* **29**, 225-230. Discussion: pp. 230-232. **1883**

Between 0·1 and 4 g. of pure or technical urea per kg. body wt. were administered as single doses to sheep. Two (weighing 43 and 46 kg. respectively) were fed 1 g./kg. body wt. daily for 2 months. There were great individual variations in susceptibility: in one case a ewe died after consuming 0·5 g./kg. body wt., whereas two others tolerated daily doses of 1 g./kg. for 2 months. The dose administered should not exceed 0·5 g./kg.—D. S. PAPWORTH.

EKSTAM, M. (1957). Något om grisfosterdöd. **[Foetal death in pigs.]**—*Medlemsbl. Sver. VetFörb.* **9**, 14-17. [In Swedish.] **1884**

Foetal death in pigs has increased in incidence during the last two years in Sweden. Hereditary factors do not appear to be involved; bacteriological examination yields negative results; and the nutritional status of the herds in which the highest incidence has occurred has been good. In most cases, rat control with "Dicumarin" had recently been carried out on the affected premises. In 3 of the 5 instances described (out of 37 investigated in Kristianstad within 9 months), deaths from dicoumarol poisoning were found to have occurred among other farm animals on the same premises. Of the 11 sows and gilts involved in these 5 instances, 4 became recumbent and could not suckle their young; 3 of these recovered after treatment with vitamin K; a calcium preparation was ineffective. Usually just under half of the foetuses (but sometimes all) were dead. It was found that in pregnant sows which had died from dicoumarol poisoning, the foetuses, within their foetal membranes, were usually separated from the uterine wall, and the amniotic fluid was slightly tinged with blood. Variations in their size indicated that some had died at an early, and others at a late stage of gestation. If, as the circumstantial evidence indicated, dicoumarol poisoning is the cause of foetal death in pigs, E. suggested that rat control might be effected more economically by some means other than "Dicumarin".—F.E.W.

HARRIS, J. R., STODDARD, G. E., BATEMAN, G. Q., SHUPE, J. L., GREENWOOD, D. A., HARRIS, L. E., BAHLER, T. L. & LIEBERMAN, F. V. (1956). **Effects of feeding dieldrin- and heptachlor-treated alfalfa hay to dairy cows.** —*J. Agric. Food Chem.* **4**, 694-696. **1885**

Eight cows were fed for 4 months alfalfa hay which had been treated with heptachlor or dieldrin 7 days before harvesting. Milk samples were taken weekly. A small amount of dieldrin was found in the milk (0·3 to 1·3 p.p.m.) and a considerable amount in the butter (9·5 to 39·3 p.p.m.) from cows fed hay treated with 1 or 4 oz. of dieldrin per acre. No heptachlor was excreted in the milk. A small amount of heptachlor epoxide was found in milk (0·1 p.p.m.) and butter (0·2 p.p.m.) from cows fed hay treated with 4 oz. of heptachlor per acre. There was no detectable effect on milk production, food consumption or health of the cows. Histological examination of kidney, liver, muscle and fat tissue revealed no abnormalities.—M.G.G.

O'BRIEN, R. D. (1957). **The effect of malathion and its isomer on carbohydrate metabolism of the mouse, cockroach and house fly.**—*J. econ. Ent.* **50**, 79-84. [Author's summary slightly modified.] **1886**

Studies have been carried out on the effect of malathion and iso-malathion on carbohydrate metabolism in mouse brain, cockroach muscle and the house fly. In the brain of the mouse, malathion and iso-malathion are effective inhibitors of pyruvate oxidation, perhaps by interference with the citrate oxidizing system. Apart from this inhibition, the glycolytic and tricarboxylic acid cycle pathways of carbohydrate metabolism in the mouse and cockroach (and in the house fly where observations were possible) are not substantially inhibited by these organo-phosphates *in vitro*. Furthermore, there is generally smaller inhibition for insect than for mouse enzymes. Since malathion is far more toxic to insects than to mammals, it is unlikely that the interferences with carbohydrate metabolism *in vitro* have any connexion with the insecticidal action of the compound.

Bohosiewicz, M. (1956). Badania nad toksycznościa dla kur zboża zaprawionego niektórymi suchymi zaprawami zbożowymi. **[Toxicity to poultry of cereals treated with various seed dressings.]** — *Weterynaria, Wroclaw.* **2,** 91-100. [In Polish. English and Russian summaries.] **1887**

B. fed cereals treated with 10 different proprietary seed dressings to 2 groups of fowls and pigeons. In older birds fed for 25 days on corn treated according to the manufacturers' instructions and in young birds, given for 15 days corn treated with twice the recommended amount of seed dressing, no ill effects were noted during an observation period of 2 weeks after the experiment.—M. Gitter.

Mangalik, V. S., Mehrotra, R. M. L. & Nayak, N. C. (1957). **The pathogenesis of ascites in carbon tetrachloride cirrhosis.**—*J. Path. Bact.* **73,** 239-251. [Authors' summary modified.] **1888**

Portal hypertension plays no significant role in the production of ascites in carbon-tetrachloride cirrhosis of albino rats. Ascites was found in animals with only slightly raised portal-vein pressure, while there were many instances where a markedly raised portal-vein pressure was not accompanied by ascites. There were no important alterations in the plasma-protein concentrations in animals with or without ascites. Repeated plasmapheresis in cirrhotic animals decreased the plasma-protein concentrations but had no effect on the incidence of ascites. Similar observations were noted in animals kept on a low-protein diet.

The incidence of ascites was found to be related to the degree of hepatic fibrosis. It is postulated that an obstruction to the venous outflow from the liver may be concerned in the development of ascites.

Bubień, Z., Kuprowski, M. & Lipanowicz, J. (1956). Zatrucie koni makuchem rzepakowym. **[Rape seed cake poisoning in horses.]** — *Méd. vét., Varsovie.* **12,** 613-616. [In Polish. English and Russian summaries.] **1889**

An account of an outbreak of rape poisoning in which 4 out of 14 horses died. Dyspnoea was one of the main clinical symptoms. P.M. examination revealed pulmonary oedema, hydrothorax (about 10 litres of fluid) and degenerative changes in the heart and liver. Analysis of the contents of the alimentary tract and of feeding stuffs eliminated the possibility of ANTU or other chemical agents. 3% of rape cake was found in the stomach contents, 16% in the mixed concentrates and 16% in wheat bran.

—M. Gitter.

Hall, W. T. K. (1956). *Xanthorrhoea hastile* **poisoning of cattle.**—*Qd J. agric. Sci.* **13,** 97-106. [Author's summary slightly modified.] **1890**

Four feeding experiments with *X. hastile* (swamp grasstree) were done in an endeavour to produce the condition known as "wamps" or North Coast disease of cattle. A 480 lb. heifer fed 204 lb. of chaffed spikes in 48 days, and a 350 lb. steer fed 305 lb. in 50 days remained healthy, but typical symptoms were produced when 467 lb. was fed to a 200 lb. heifer in 73 days, and when 470 lb. was fed to a 400 lb. animal in 48 days. A delayed effect of the plant toxin was observed. The symptoms are an ataxia in which there is a diagonal progression brought about by swinging of the hindquarters always to the same side. Often urinary incontinence, with the beast in the normal urinating posture, is seen. There is frequently complete recovery, but death may occur from starvation if the animal becomes recumbent and is unable to rise.

McMeekan, C. P. (1956). **Facial eczema in dairy herds.**—*Proc. Ruakura N.Z. Frmrs Conf. Week.* 1956. pp. 233-234. Discussion: pp. 234-236. **1891**

A discussion of practical measures for preventing facial eczema, and of some other aspects of the condition. [See also *V.B.* **26,** 2405.]

—R.M.

Parrish, H. M. & Scatterday, J. E. (1957). **A survey of poisonous snakebites among domestic animals in Florida.**—*Vet. Med.* **52,** 135-139. [Authors' summary modified.] **1892**

A questionnaire sent to veterinarians in Florida showed that, on average, 360 poisonous snakebites among domestic animals are treated annually. Dogs were the most frequent victims. There was a 25·9% mortality among this group of treated animals. Most animals were bitten on the head and face, shoulders, forelegs, neck, chest, and hindlegs. Poisonous snakebites occur more frequently during the spring and summer months than during the hunting season. Recent trends in the treatment of snake-venom poisoning are discussed.

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

BORGMAN, R. F. (1957). **Some uses of mepazine in dogs.** — *Vet. Med.* **52,** 132-134. [Author's summary modified.] **1893**

Mepazine, marketed as "Paxital", was found to be an effective tranquillizing agent for dogs, without evident side effects. It was useful in controlling minor irritations such as pruritus, restlessness resulting from change in environment, in chronic bronchitis, and in various accident cases. This compound served as a chemical restraint in hyperexcitability without loss of sensibility or body function during manipulations such as clipping, bathing, removing sutures, and reducing skeletal fractures. It was also used successfully in the treatment of cardiac dilatation, degenerative lesions of the brain, and other nervous disturbances. Other possible uses are also discussed.

SCHMITERLÖW, C. G. & TUFVESSON, G .(1956). **The use of chlorpromazine as a pre-operative, sedative drug in dogs. A pharmacological and clinical study.**—*Nord. VetMed.* **8,** 385-396. [In English. German and Swedish summaries.] **1894**

Chlorpromazine at a level of 2 mg. per kg. body wt. was tested pharmacologically and clinically in dogs and appeared to be an excellent pre-medication before operations under local anaesthesia. It caused a slight and transient fall in blood pressure and a transient dyspnoea. This substance reverses the action of adrenaline and abolishes the carotid sinus reflex and causes a constriction of the pupils.—D. S. PAPWORTH.

HALPIN, E. (1956). **Glycyrrhetinic acid—a new use for a substance extracted from liquorice. A preliminary report.**—*Brit. vet. J.* **112,** 496-499. **1895**

Possible clinical uses for glycyrrhetinic acid are discussed on the basis of trials with the substance on dogs and cats. It showed no promise for treatment of eczema in the dog, but results were encouraging in miliary eczema in the cat. Chronic otitis externa, chronic proliferative conditions of the skin, vascular keratitis (pannus), and pigmented keratitis have been treated with some success in dogs.

—D. S. PAPWORTH.

I. FOLEY, E. J., MORGAN, W. A. & GRECO, G. (1957). **Effect of prednisone and prednisolone on *Streptococcus* infections in mice treated with chlortetracycline.** — *Antibiot. & Chemother.* **7,** 65-69. **1896**

II. FOLEY, E. J., MORGAN, W. A. & GRECO, G. (1957). **Effect of prednisone and prednisolone on antibody formation in mice.**—*Ibid.* 70-74. [Spanish summaries pp. 95-96. Authors' summaries modified.] **1897**

I. Prednisone and prednisolone, were compared with cortisone and hydrocortisone for their effect in promoting experimental infections in mice and in interfering with the chemotherapeutic activity of chlortetracycline. All four corticoids interfere with host defence mechanisms when given in massive doses to infected animals, but not when administered in low doses, which on a weight basis approximate those used in human medicine. All four compounds appear to be of about equal potency in this property. Since prednisone and prednisolone are more active on a weight basis than cortisone or hydrocortisone, it is considered that they can be used with a greater margin of safety than cortisone or hydrocortisone.

II. The formation of bacterial and red cell agglutinins in mice is impaired to some extent when large doses (25 mg./kg.) of cortisone, prednisone, and prednisolone are injected during the course of antigen injections. This occurred to a lesser extent when 5 mg./kg. doses of the steroids were administered. Prednisone and cortisone when given in very large doses (50 mg./kg. daily) to mice prevented the development of immunity to a transmissible lymphosarcoma. This effect was not seen when doses of 5 mg./kg. were given.

No evidence was obtained in these experiments that either prednisone or prednisolone interferes with antibody formation or development of foreign tissue immunity to a greater

extent than does cortisone. This is considered to be important with regard to the relative safety of the drugs, since roughly four times as much cortisone is needed for anti-arthritic effect in human beings and other physiological effects in animals than is required of either prednisone or prednisolone.

SCHREIBER, J. (1956). Die anatomischen Grundlagen der Leitungsanästhesie beim Rind. IV. Die Leitungsanästhesie der Nerven der Hinterextremität. **[Anatomical basis of local anaesthesia in cattle. IV. Regional anaesthesia of the nerves of the hind leg.]**—*Wien. tierärztl. Mschr.* **43**, 673-705. [English, French and Italian summaries.] **1898**

A detailed, illustrated description of the anatomical basis of local anaesthesia of the hindquarters of cattle, with tabulated reference to suitable injection sites for blocking the various nerves. New methods have been used for the blocking of the lumbo-sacral plexus and for paravertebral anaesthesia. A sound-film, with German and English dialogues, has been made to demonstrate local anaesthesia of those nerves and nerve branches which are of particular practical importance in bovine surgery.

—F. K. LEEB.

SAZHIN, N. G. (1956). **[Nerve-block anaesthesia of the bovine tongue.]**—*Veterinariya, Moscow.* **33**, No. 12. pp. 49-51. [In Russian.] **1899**

To anaesthetize the bovine tongue, 20–30 ml. of 3% procaine soln. was injected around the left and right lingual and sublingual nerves by a hypodermic needle inserted between the rami of the mandible, just posterior to the molar teeth. Ingestion of food and rumination cannot occur during the period of anaesthesia: to avoid tympanites the animal should be fasted beforehand.—R.M.

See also absts. **1671** (nifuraldezone); **1681** (furazolidone in duck salmoneliosis); **1736** (synergy of chemotherapy in malaria and toxoplasmosis); **1748** (trypaflavine in fowl pox); **1797-1800, 1802, 1804-1805, 1807-1808 & 1885-1886** (insecticides); **1811, 1822-1823 & 1885** (anthelmintics); **1852** (motion sickness); **1864** (eosinophilic myositis); **1877-1879** ("calcium versenate" in lead poisoning); **1946** (hook, corticosteroid therapy).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

ARTHUR, G. H. (1957). **Some notes on the quantities of foetal fluids in ruminants with special reference to "hydrops amnii".**—*Brit. vet. J.* **113**, 17-28. [Author's summary slightly modified.] **1900**

Published work on the quantities of foetal fluids normally present in ruminants is reviewed. Figures are given for the separate quantities of amniotic and allantoic fluid at successive stages of pregnancy in 26 sheep and 71 cattle. The results are discussed and compared with the findings of previous workers. Detailed histories of 4 cases of hydrops of the foetal sacs in cattle are presented. The source of the fluids is discussed and some new theories are formulated.

ALEXANDER, G. (1956). **Changes in weight of lambs during the first thirty-six hours of life.**—*Aust. vet. J.* **32**, 321-325. [Author's summary slightly modified.] **1901**

Observations were made on changes in body wt. of 104 lambs between birth and 36 hours of age. Loss in wt. due to drying of the coat was estimated to average 260 g. and was distinguished from early loss of metabolic origin which was estimated to be of the order of 20 g. per hour. Lambs fasted from birth showed a substantial progressive fall in wt. (mean of 246 g. at 12 hours); lambs allowed to drink from their mothers showed a progressive increase in wt. (mean of 89 g. at 12 hours). Errors which might arise in the practical estimation of birth wt. are discussed. It is pointed out that where lambs of two groups are first weighed some hours after birth, a substantial component of any difference in mean wt. could result from differential wt. changes after birth if conditions affecting the consumption of milk of lambs differed between the groups.

MACFARLANE, W. V. & ROBINSON, K. W. (1957). **Seasonal changes in plasma antidiuretic activity produced by a standard heat stimulus.**—*J. Physiol.* **135**, 1-11. [Authors' summary modified.] **1902**

Seasonal changes were recorded in plasma Na, K, Cl, osmotic pressure, protein and antidiuretic activity of 4 resting human beings and one sheep during 4 hours' exposure to a standard hot atmosphere (40·5°C., 30 mm. Hg vapour pressure). When heating took place in summer and autumn in Australia plasma protein concentration and osmotic pressure rose in both species and an increase from an average value of 37 μu./ml. to 112 μu./ml. of antidiuretic activity was observed in human plasma. In winter and spring, with the same degree of heating, there was no concentration of plasma and only one-seventh of the summer increase in antidiuretic activity of the plasma. Exercise at 40·5°C. in summer and winter increased plasma antidiuretic activity more than heat alone.

DALE, H. E., BURGE, G. J. & BRODY, S. (1957). **The effect of environmental temperature on blood volume and the antipyrine space in dairy cattle.**—*Amer. J. vet. Res.* **18,** 97-100. **1903**

When 3 dry and 3 lactating Jersey and 3 lactating Holstein-Friesian cows were exposed to each of 4 diurnally variable temperatures, 10° to 40°, 40° to 70°, 60° to 110° and 70° to 100°F., all had increased serum and blood volumes at the higher temperature ranges. This was most noticeable in the lactating Holstein-Friesians and least in the dry Jersey cows. Consecutive determinations of total body water by the dilution volume of antipyrine were so variable as to lead to the conclusion that antipyrine does not consistently measure total body water in cattle.—A. ACKROYD.

HANSSON, C. -H. (1956). **On cholinesterases and muscle relaxing compounds. I. Electrometric estimation of the cholinesterase activity in common domestic animals.**—*Acta pharm. tox., Kbh.* **12,** 142-153. [In English. Author's summary copied *verbatim.*] **1904**

An electrometric method for the determination of cholinesterase activities is described. It has been used for the following substrates: acetylcholine, butyrylcholine, acetyl-β-methylcholine and succinylcholine with enzymatic preparations from the horse, cow, pig or dog. The method makes it possible to determine the very small activities induced by, *e.g.*, succinylcholine. Experiments have been performed to show the pH-range, the reaction times and the concentrations of enzymes and substrates. The method was evolved to facilitate the diagnosis of clinical conditions induced by anti-cholinesterases.

DYBING, O. & HJELLE, A. (1957). Kolinesteraseaktiviteten i blod hos storfe. **[Cholinesterase activity in the blood of cattle.]** —*Nord. VetMed.* **9,** 41-48. [In Norwegian. English and German summaries. English summary modified.] **1905**

The cholinesterase activity of unwashed erythrocytes of heifer calves did not differ significantly from that of bull calves. In a study of 15 and 18 animals in each group the respective mean values (μl.CO_2/30 min. per 0·1 ml. enzyme preparation) were $178 \pm 5{\cdot}1$ and $182 \pm 5{\cdot}9$. The corresponding value for adult cows was $193 \pm 4{\cdot}1$. Washed erythrocytes, from cows showed somewhat higher activity than unwashed erythrocytes, having a mean value of 212 (10 animals).

The cholinesterase activity of 0·1 ml. of whole blood from 18 cows showed a mean value of $132 \pm 4{\cdot}4$ in direct analysis. When 0·1 ml. samples of the same blood were applied on filter paper and stored for one week, analysis revealed a cholinesterase activity only 10% lower than the original value.

GREATOREX, J. C. (1957). **Observations on the haematology of calves and various breeds of adult dairy cattle. I. General recordings.**—*Brit. vet. J.* **113,** 29-33; 65-70. [Abst. from author's summary.] **1906**

The blood picture of 233 calves up to one year old and of 49 cows from the 5 main dairy breeds of Gt. Britain was studied over a period of 2 years. Blood samples were taken weekly from the calves and monthly from the cows. This paper records the normal ranges, mean values, and frequency distributions of the blood constituents.

I. BALBIERZ, H. & NIKOŁAJCZUK, M. (1956). Leukogram u prosiąt w okresie ssania. **[The white blood picture in unweaned piglets.]**—*Weterynaria, Wroclaw.* **2,** 41-58. [In Polish. English and Russian summaries.] **1907**

II. BALBIERZ, H. & NIKOŁAJCZUK, M. (1956). Obraz czerwonokrwinkowy u prosiąt w okresie ssania. **[The red blood picture in unweaned piglets.]**—*Ibid.* 59-71. [In Polish. English and Russian summaries.] **1908**

I. Differential counts on 390 blood smears from new-born piglets revealed a similar pattern to that of sows, namely a preponderance of granulocytes which, however, stained more deeply in piglets. At one week the number of granulocytes fell but lymphocytes increased and lymphocytosis was evident by 2 weeks; the lymphocytes kept increasing in numbers up to 4 weeks. At 5 weeks the eosinophiles and neutrophiles were becoming more numerous and by 7 weeks only slight lymphocytosis was recorded; at that age a shift to the left in the granulocytes was also noted. Since there appears to be a correlation between the numbers of granulocytes, r.b.c. and haemoglobin levels in young piglets the authors are of the opinion that granulocytes should be taken into consideration in investigations of piglet anaemia.

II. The authors examined 416 blood samples from unweaned piglets. The r.b.c. picture varied greatly with the age of the animals. In day-old piglets 6·5–7·8 million r.b.c. per cu.mm. of blood and 16 g.% haemoglobin were recorded. At this stage no marked deviations from normal were seen. At 7 days the Hb and total r.b.c. count were down and increase in numbers of nucleated r.b.c. was noted. Further

fall in Hb levels and numbers of r.b.c. and mass appearance of young forms were noted in the second week; this persisted during the 3rd and 4th weeks. From the 5th week onwards there was a gradual increase in the numbers of r.b.c. and in the Hb level. The authors drew attention to star-shaped r.b.c. which were absent from the blood of sows and new-born piglets but appeared towards the end of the first week and reached a high level in piglets 2, 3 and 4 weeks old.

—M. GITTER.

HILL, K. J. & HARDY, W. S. (1956). **Histological and histochemical observations on the intestinal cells of lambs and kids absorbing colostrum.** — *Nature, Lond.* **178,** 1353-1354. **1909**

A histological and histochemical study of the intestinal epithelium of young lambs and kids receiving colostrum was carried out shortly after they had been killed. Results showed that the material in the lumen of the gut, the globules in the epithelial cells, and the material in the lacteals was muco- or glycoprotein. It seemed reasonably certain that the globules were, in fact, the colostral proteins.—D. S. PAPWORTH.

CLARKSON, T. B., KING, J. S., JR. & WARNOCK, N. H. (1957). **A comparison of the effect of gallogen and sulfarlem on the normal bile flow of the cockerel.**—*Amer. J. vet. Res.* **18,** 187-190. **1910**

In cockerels, gallogen (ellagic acid) did not increase the production of bile, collected by cannulation of the cystic duct after ligature of the hepatic duct, as has been reported to occur in man and mammalian experimental animals. A true choleretic action can not therefore be involved in the ability of gallogen to lower the serum cholesterol of cholesterol-fed cockerels. "Sulfarlem" (5-(*p*-methoxyphenyl)-1, 2-dithiol-3-thione) increased the bile volume of cockerels approx. 200–400%.—A. ACKROYD.

CHITTY, D., CHITTY, H., LESLIE, P. H. & SCOTT, J. C. (1956). **Changes in the relative size of the nucleus in the intervertebral discs of stressed Orkney voles** (*Microtus orcadensis*).—*J. Path. Bact.* **72,** 459-470. [Abst. from authors' summary.] **1911**

Young male Orkney voles were put in contact with an old mated pair for periods of about 2 hours daily for 3 to 12 days. Fighting, chasing and superficial wounding occurred. The more severely wounded animals, in comparison with their litter-mate controls, had higher liver, spleen, adrenal gland and bodyweights, a smaller thymus and a larger cross-sectional area of the nucleus pulposus. The less severely wounded animals also had higher bodyweights but only slightly higher adrenal gland weights; otherwise they did not differ consistently from their controls.

BJÖRKMAN, N. (1956). **Morphological studies on the epithelia of the intercotyledonary component of the bovine placenta.**—*Acta morph. neerl.-scand.* **1,** 41-50. [In English. Abst. from author's summary.] **1912**

The intercotyledonary area was studied morphologically and, to a lesser extent, histochemically in uteri obtained from cows from the 31st day of pregnancy to full term. A special fixation procedure made it possible to keep the chorion in close contact with the endometrium. The endometrial surface was mainly found to be provided with an intact epithelial lining throughout gestation. Before implantation, the epithelium of the endometrial surface consisted of darkly-staining cells. At the time of attachment of the chorion the epithelium was transformed into lightly-staining cells. There were indications that the crypts lining the placentomes were of maternal origin. Towards mid-gestation the lightly-staining epithelium was gradually replaced by darkly-staining epithelium proliferating from the mouths of glandular ducts. [See also *V.B.* **25,** 3412.]

HEATH, H., RIMINGTON, C. & MANN, T. (1957). **Further studies on seminal ergothioneine of the pig.**—*Biochem. J.* **65,** 369-373. [Authors' summary modified.] **1913**

A new, generally applicable method of isolating pure ergothioneine from biological material is described. DL[^{35}S]methionine (5·5 mc) was administered to a mature pig; no radioactivity could be detected in the blood ergothioneine after 49 days or in the seminal ergothioneine up to 83 days after administration of the isotope. No biosynthesis or metabolic exchange of ergothioneine sulphur with other labelled body constituents took place. An unidentified sulphur compound which is oxidizable to sulphate by bromine water is present in pig semen.

FREINKEL, N. (1956). **Pathways of thyroidal phosphorus metabolism: the incorporation of ^{32}P and ^{14}C labelled glycerol into the individual phospholipids of surviving sheep thyroid slices.**—*J. Endocrin.* **14,** No. 2. pp. xx-xxi. of Proceedings. **1914**

This is a condensed report of continuing experiments designed to elucidate the inter-

mediary metabolism of the thyroid gland. The results of several experiments are discussed briefly.—D. S. PAPWORTH.

TALMAGE, R. V. (1956). **Studies on the maintenance of serum calcium levels by parathyroid action on bone and kidney.**—*Ann. N.Y. Acad. Sci.* **64**, 326-335. **1915**

While the normal function of the parathyroid gland is to control the amount of calcium in the blood, the gland also affects phosphorus metabolism, because Ca and P ions are closely bound. Normally the indirect effects of the gland on phosphate metabolism have little bearing on phosphate metabolism, but, under pathological conditions (over-activity of the parathyroid) there may be increased excretion of P by the kidney that leads to pronounced loss of Ca and P from bone. These conclusions were based on experiments with rats.—R.M

SERRA, J. A. & ALBUQUERQUE, R. M. (1956). Natureza e causas da cor "canário" em lãs brancas. II. pH, alcalinidade e sugo. **[Nature and cause of "canary" coloration of wool.]** —*Publ. Ser. Cient. Invest., Lisboa.* Ser. A. No. 5. pp. 53. [English summary.] **1916**

Yellow coloration of sheep's wool was found to be caused by the action of an alkaline suint on the wool keratin. Of the known compounds of keratin, only cystine and cysteine gave rise to a comparable yellow colour when treated with alkalines. It was postulated that the colour depended on the formation of β-thio-di-α-aminoacrylic acid, having a $=C:CHSCH:C=$ linkage; a more intense coloration would result from the formation of a $=C:CHSSCHC:=$ linkage. The main alkalies present in suint which might give rise to this reaction when present in excess, were potassium compounds. Excretion of K by sweat glands, and its neutralization by the waxy part of sebaceous gland secretion, were therefore factors involved in the process.

—R.M.

—. (1955). **Ionizing radiation methods for determining biological structure. [Edited by** MINER, R. W.]—*Ann. N.Y. Acad. Sci.* **59**, 469-664. **1917**

This is a series of papers dealing with various aspects of ionizing radiation in relation to biological systems. The topics covered include the effects of ionizing radiations in cells and the possible mechanisms by which such radiations produce their effects—this includes radiation studies of proteins and enzymes.

—N. SABA.

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

NEGRETTI, F. (1956). Ricerche sperimentali sulla conservabilità del latte trattato con H_2O_2. **[The keeping qualities of milk treated with H_2O_2.]**—*Arch. Vet. Ital.* **7**, 121-136. [English, French and German summaries.] **1918**

After treatment with H_2O_2 (5–10 : 1000) milk stored at 28°C. retained its qualities for 2–39 days. A low catalase index, removal of gross contamination by filtration, a higher conc. of H_2O_2 (8–10 : 1000) and previous storing at a low temp. enhanced the keeping qualities. When catalase was added to the milk 5 days after treatment the keeping qualities ranged between 12 and 102 hours. The addition of catalase is not considered advisable unless the milk has a metallic taste. Gram-positive, spore-bearing organisms, micrococci, aspergilli, streptococci and *Escherichia* were isolated from treated milk. This microflora, it is considered, reduced the keeping qualities.—T.E.G.R.

BRYANT, R. J., CHAMBERLAIN, A. C., MORGAN, A. & SPICER, G. S. (1956). **Radiostrontium fallout in biological materials in Britain.** pp. 44. Harwell: Atomic Energy Research Establishment. [A.E.R.E. HP/R.2056.] [Authors' abst. copied *verbatim*.] **1919**

Methods are described for the determination of Sr^{90} due to fallout from nuclear explosions in soils, vegetation, bones and milk. The results of measurements on British samples up to the spring of 1956 are given. The current levels in Britain are shown to be very similar to those reported for the United States.

SIEVERT, R. M., GUSTAFSSON, S. & RYLANDER, C. G. (1956). **Increase in γ-radiation from powdered milk and beef, 1953-56.**—*Nature, Lond.* **178**, 854-855. **1920**

Samples of beef and of powdered milk stored for various periods during 1953–56 were tested for gamma radiating fission products. Results are given in the form of a graph. Observations carried out in 1954 and in 1956 on gamma radiation from human subjects consuming milk are given in tabular form. No significant change in the average radiation was demonstrable.—T.E.G.R.

YOSHI, G., WATABE, N. & OKADA, Y. (1956). **Biological decontamination of fission products.**—*Science.* **124**, 320-321. **1921**

Alga, *Aphanocapsa koordersii,* which abounds in brackish lake water, absorbed about 30% of the radioactive elements which had been added to the water. Rotiferae, *Brachionus plicatlis,* which were later added to the water, consumed all the *Aphanocapsa* and eventually died owing to lack of further supplies of food. The dead organisms, which had absorbed radioactive elements from the *Aphanocapsa* and from the water, sank to the bottom of the container and, on decomposition, the radioactive elements were again released into the water.

—T.E.G.R.

LAZARUS, M. (1956). **The toxicity and relative acceptability of some poisons to the wild rabbit,** *Oryctolagus cuniculus* **(L.)**—*C.S.I.R.O. Wildlife Res., Aust.* **1,** 96-100. [Author's summary modified.] **1922**

In laboratory tests of nine substances already in use or considered suitable for poisoning wild rabbits, *Oryctolagus cuniculus,* only sodium fluoroacetate ("1080") seemed to have any considerable advantage over strychnine and phosphorus.

—. (1955). **Legislation administered by the Animal Industry Branch.**—*Commonwealth of Australia. Northern Territory Admin. Anim. Industr. Branch. Ext. Art.* No. 1. pp. 29: Adelaide: E. J. McAlister & Co. **1923**

During 1954 and 1955 all the more important legislation administered by the Animal Industry Branch was revised and this article is a colloquial description of the more important contents of the Ordinances.

The Stock Diseases Ordinance, 1954-1955, is designed to deal quickly and effectively with any of the serious diseases not now existent in Australia, but which might easily be introduced through the medium of air transport. It provides for establishing Protected Areas to be maintained free from diseases. The diseases subject to the Ordinance are listed.

The Stock Routes and Travelling Stock Ordinance, 1954-1955, is designed for the control, construction, and maintenance and use of the Northern Territory Stock Routes.

The Brands Ordinance, 1928-1954, regulates the branding and earmarking of stock, and provides for three-letter brands incorporating the letter T, thus identifying stock having origin in the Northern Territory.

The Abattoirs and Slaughtering Ordinance, 1955, regulates the slaughtering of livestock for human consumption, and has power to construct and manage Government abattoirs, and to grant licences for private abbattoirs.

The Dingo Destruction Ordinance, 1923-1952, provides full powers for controlling dingoes, the word "dingo" including "any undomesticated dog . . . inhabiting the bush . . . apparently having no owner, and not being under control.

The Birds Protection Ordinance, 1928-1940, is designed to prevent the destruction, capture or removal of such birds as it is considered desirable to preserve for posterity.

The Commonwealth Quarantine Act, 1908-1950, (Animals Division) and its Regulations are designed to exclude serious animal diseases from gaining entrance into Australia.

—A. G. CULEY.

See also abstr. **1786** (psittacosis in man); **1790-1791** (Q fever).

LIVESTOCK HYGIENE

ANON. (1956). **Standards for design and operation of loose housing systems for dairy cattle in the North Central Region.**—*J. Milk Tech.* **19,** 302-312. **1924**

Under the "loose housing" system adult animals have free access to a feeding area, a resting area and an open space. The minimum requirements for the layout and construction of all the different buildings constituting a dairy farm are laid down by a sub-committee appointed for the purpose. The principles underlying the recommendations are hygiene, increased production and economy of manpower.—T.E.G.R.

REPRODUCTION AND REPRODUCTIVE DISORDERS

KRISHNA RAO, C. (1957). **Effect of the technique of staining on sperm morphology.**—*Brit. vet. J.* **113,** 13-16. [Abst. from author's summary.] **1925**

The techniques studied were—the conventional method, the direct mixing method, the dipping and blotting method and the ignition technique.

The results indicated that as long as smears are made with the utmost care, using proper materials and techniques, the proportion of abnormal spermatozoa with the different staining procedures remains fairly constant. Even when smears were subjected to the ignition technique the structure of the spermatozoa was unaffected.

BÓDAI, J. (1956). Újabb eljárás meddő kancák gyógykezelésére. [**Treatment of chronic metritis in mares.**]—*Mag. állator. Lapja.* **11,** 297-298. [In Hungarian. English and Russian summaries. Abst. from English summary.] **1926**

Treatment, which is claimed to have effected a complete recovery, consisted of lavage with Pregl solution [an aqueous soln. containing sodium and iodine ions with 0·04% free iodine] and with dienoestrol soln. and application of trypaflavine ointment.—T.E.G.R.

RAESIDE, J. I. & LAMOND, D. R. (1956). **Effects of progesterone and pregnant mare serum (PMS) administration in the anoestrous ewe. I. Oestrus, ovarian changes, and gonadotrophic potency of the pituitary gland. II. Histological examination of the genital tract.** — *Aust. J. agric. Res.* **7,** 591-600 & 601-607. **1927**

I. Injection of progesterone did not produce oestrus or ovulation in anoestrous Romney ewes. Pregnant mare's serum (PMS) induced ovulation without oestrus in 6 out of 10 ewes; combined administration of both hormones caused ovulation in all and oestrus in 6 out of 10 ewes. Gonadotrophic potencies of the pituitaries from the different groups were measured, but no significant differences were found.

II. Histological examination of the genital organs of anoestrous ewes treated with progesterone showed that growth of the uterine epithelium and glands was stimulated. A similar but less marked effect was noted in the cervix. When ovulation occurred after administration of PMS the effects on the uterus were similar to those of progesterone, otherwise the tract resembled that of the anoestrous animal. Combined injection of both hormones produced a more marked stimulation of the uterus and cervix than progesterone alone; this suggested that PMS enhanced the action of progesterone.

—A. W. BLACKSHAW.

ARON, C. (1957). Effets, sur l'ovaire de la ratte prémature, de doses répétées d'extrait préhypophysaire. Contribution à l'interprétation du phenomène de la superovulation. [**Superovulation in the immature rat after repeated doses of anterior pituitary extract.**] —*C.R. Acad. Sci., Paris.* **244,** 243-246. **1928**

The number of corpora lutea formed in immature rats, weighing 50–60 g. each, under conditions of experimental luteinization seemed to depend more on the duration of action of the ovarian stimulant than on its dosage.—R.M.

JOHARI, M. P. (1956). **Anatomical defects of the reproductive organs in cattle found in Uttar Pradesh.**—*Curr. Sci.* **25,** 291-292. **1929**

Details were given of cryptorchidism, under-developed uterus and ovaries, freemartins, monsters and other malformations encountered in cattle and buffaloes in Uttar Pradesh.—E.G.

SEIBOLD, H. R. & ROBERTS, C. S. (1957). **A microscopic congenital cerebellar anomaly in pigs.**—*J. Amer. vet. med. Ass.* **130,** 26-27. **1930**

An account of a syndrome in baby pigs, consisting of progressive incoordination, ataxia and vertigo culminating in death. Microscopic examination of the cerebellum of 3 affected pigs suggested that the disease was associated with nuclear malformation in some of the Purkinje cells. Although the authors imply that inbreeding was a possible factor in the aetiology, they do not appear to have made a detailed investigation of the genetics of the outbreak.

—L. M. MARKSON.

MCCARTNEY, M. G., CARTER, R. D., WYNE, J. W. & CHAMBERLIN, V. D. (1957). **Oviduct and oviducal orifice duplication in the turkey female.**—*Vet. Med.* **52,** 145-146. [Authors' summary modified.] **1931**

Duplication of the oviduct orifices was observed in three females during routine artificial inseminations in a flock of 249 Large White turkeys of the same strain. P.M. examination revealed that the right oviducts of two of the females were rudimentary, while duplication of the oviduct had occurred in the third. There was no evidence of ovary duplication in any of the females. The various regions of both oviducts of the third female were measured and compared.

See also abstr. **1685-1698** (brucellosis); **1701** (leptospiral abortion in swine); **1713-1716** (vibriosis); **1729** (trichomoniasis); **1752** (abortion due to equine virus arteritis); **1939** (report, Ministry of Agriculture, Great Britain); **1941** (report, New Zealand); **1942** (report, U.S.A.); **1950** (book, veterinary obstetrics and genital diseases).

ZOOTECHNY

JEFFERIES, B. C. & FEARN, J. T. (1956). **Overfat ewes have light lambs.** — *J. Dep. Agric. S. Aust.* **60,** 133-134. **1932**

Two groups of 120 ewes were kept on (1) high and (2) medium planes of nutrition, respectively, from mating until the lambs were weaned (nearly 12 months). Ewes on (1) produced lambs significantly lighter than those on

(2), even when multiple births were excluded. Fleece weights of ewes on (1) were significantly higher but the fleece weights of their lambs shorn as weaners were not significantly higher than those in the other group. Age of dam significantly affected lamb birth weight and hogget fleece weight.—MARGARET H. HARDY.

KING, J. O. L. (1956). **Poultry breeding for increased production, with special reference to health.**—*Vet. Rec.* **68**, 994-998. Discussion: pp. 998-1004. **1933**

In this paper methods of profitable poultry breeding are reviewed. Egg production can be increased and mortality can be reduced by selective, in-, line-, and cross-breeding. Breeding from hens is considered preferable to breeding from pullets in view of the known performance and "livability" of the former.—T.E.G.R.

TECHNIQUE AND APPARATUS

SYKES, G. [Edited by.] (1956). **Constituents of bacteriological culture media. A review of information available on methods of manufacture prepared by the Standardization Subcommittee of the Society for General Microbiology.** — *Spec. Rep. Soc. gen. microbiol.* Cambridge: University Press. pp. 33. 4s. **1934**

A review of interest to those concerned with the preparation of culture media.—R.M.

PERRET, C. J. (1957). **An apparatus for the continuous culture of bacteria at constant population density.**—*J. gen. Microbiol.* **16**, 250-264. [Author's summary copied *verbatim.*] **1935**

A self-regulating continuous culture apparatus is described, designed for studying growth and enzyme production in bacteria which require complex media; it might also be suitable for the cultivation of suspended tissue cells. The growth vessel is a tilted cardioid-shaped flask spinning about its long axis. Aeration and mixing are achieved in such a manner that no frothing occurs and no 'anti-foam' agents are required. Adherent bacterial colonies do not form on the walls of the growth vessel. Samples are removed rapidly under aerobic conditions. The basal medium can be automatically augmented with special metabolites at constant concentration without contaminating the main medium reservoir. The apparatus is autoclaved in one unit after assembly. Factors governing the design of similar small-scale apparatus are discussed.

HYDÉN, S. (1956). **The recovery of polyethylene glycol after passage through the digestive tract.**—*Kgl. Lantbrukshögsk. Ann.* **22**, pp. 411-424. [Author's summary modified.] **1936**

The recovery of polyethylene glycol was determined after passage through the digestive tract. In eight experiments on a cow and four on a sheep the mean recovery was 93% (range 82·9–102) after a single dose. In experiments on rabbits 80% was recovered, and in similar studies on hens and man the recovery was about 97% (range 85–102). There is evidence that the observed losses of polyethylene glycol may partly be due to a destruction in the alimentary tract. Absorption of the substance could not be detected. It was concluded that in rumen experiments (less than 10 hours) the destruction is of very little importance. In digestibility studies and other experiments of long duration the possible disappearance of the reference substance in the digestive tract should be taken into consideration, and for that purpose, further studies are necessary.

HARVEY, D. G. (1957). **On the routine chemical analysis of small volumes of urine. I. Review of methods.**—*Brit. vet. J.* **113**, 52-64. **1937**

Methods are reviewed for carrying out determinations of specific gravity, pH, glucose, lactose and some other common reducing substances, proteins, ketones, blood and bile pigments in urine—using a single drop of urine (approx. 0·02 ml.). These tests closely follow those commonly used in human medicine when dealing with small quantities of test fluids.

—D. S. PAPWORTH.

See also absts. **1649** (counting of viable tubercle bacilli); **1651-1652** (retention and differentiation of tubercle bacilli); **1657** (medium for E. rhusiopathiae); **1661** (growth factor for E. rhusiopathiae).

MISCELLANEOUS

HUTCHINS, D. R. (1956). **Abdominal surgery in horses.**—*Aust. vet. J.* **32**, 149-152. **1938**

Laparotomies were performed on nine horses: two in mares for excision of large ovarian tumours, two for bilateral cryptorchidism, two for bladder rupture (one in an aged gelding, one in a young foal), one for the retention of the meconium, one for ileo-caecal valve impaction in an aged stallion, and one for vesical calculus in an aged draught gelding.

Anaesthesia by pentobarbital sodium in the foals and a mixture of chloral hydrate, magnesium sulphate and pentobarbital sodium in the adults was adequate. The major hazard encountered with paramedian access was eventration, and with flank access vascular trauma and the development of oedema of the ventral abdominal wall and lameness.—D. C. BLOOD.

REPORTS

GREAT BRITAIN. (1956). **Ministry of Agriculture, Fisheries and Food. Report on the Animal Health Services in Great Britain 1955, including Report of Proceedings under the Diseases of Animals Act, 1950.** pp. 115. London: H.M. Stat. Off. 5s **1939**

This report incorporates an account of the transfer of certain functions from the Minister of Agriculture to the Secretary of State for Scotland as from the 1st August, 1955. The Minister and Secretary of State are jointly responsible for policy in control of notifiable diseases such as FOOT AND MOUTH DISEASE, SWINE FEVER, ANTHRAX, and FOWL PEST. The Minister is responsible for the measures taken to deal with them. In other diseases, *e.g. Brucella melitensis* infection, CONTAGIOUS ABORTION, TUBERCULOSIS and WARBLE FLY INFESTATION which, with the exception of certain forms of TB. under the Tuberculosis Order, are not notifiable, responsibility rests with the Minister in England and Wales and with the Secretary of State in Scotland. The Lasswade Laboratory—the only Government veterinary laboratory in Scotland—remains under the control of the Minister, as a substation of the Weybridge Laboratory. The new arrangements are working smoothly.

An account of TB. eradication under the Attested Herds Scheme is given from 1935 when 99 herds, comprising 5,731 animals were attested, until 1955 when 152,077 herds containing 6,052,000 cattle were on the register. The area eradication plan is described and illustrated by a map. Confirmed cases of ANTHRAX totalled 764, the highest number since 1952.

There were only nine outbreaks of F. & M. DISEASE—all in England—the lowest number, with the exception of 1930, since 1918. As a result of the Report of the Departmental Committee on foot and mouth disease, the infected area, following an outbreak was reduced from a radius of 15 miles to 10 from the outbreak. The incidence of SWINE FEVER in Great Britain (1,403 outbreaks) was slightly less than in the previous year, but there was a sharp increase in the number of outbreaks in Scotland (69 compared with 13 in 1954). There were eight outbreaks of ATROPHIC RHINITIS, all in purebred Landrace pigs, except one in which crossbred Landrace and other pigs reared in contact with them were affected. There was an exceptionally high demand for Strain 19 vaccine: 730,000 doses were issued as compared with 660,000 in 1954. Research was carried out on a large number of diseases, such as *Vibrio fetus* infection, INFERTILITY of bull semen, TB., JOHNE'S DISEASE, MASTITIS, rabbit adapted virus for SWINE FEVER, on parasitology and on poultry diseases. The work of the Lasswade Laboratory and of the Investigation services are described in special sections of the report. Two appendices include 32 statistical tables and a list of the publications by members of the staff of the Laboratory and of the Research and Investigation services.—D. S. RABAGLIATI.

NORTHERN IRELAND. (1956). **Agricultural Research Institute of Northern Ireland, Hillsborough, Co. Down. Twenty-ninth Annual Report, 1955-1956.** pp. 44. Hillsborough, Co. Down: The Institute. **1940**

A new self-feed trench silo was constructed having a permanent lean-to roof and being sited next to a Dutch barn in which cattle could be housed. The silo is long enough to accommodate cattle at either end. The main construction work, however, was concerned with the new house for pig performance testing. The general health of the dairy herd continued to be satisfactory, although the incidence of MASTITIS in the milking herd was still causing some concern.

In collaboration with the veterinary research division, the effect of different systems of grazing management on the level of HELMINTH INFESTATION was studied, using four different dosing programmes for the lambs in each group. When the lambs were sold for slaughter, each was followed through by the staff of the research division.

Investigations by the Research staff of the Ministry of Agriculture included the control of STAPHYLOCOCCAL MASTITIS; prophylaxis of ENTEROTOXAEMIA in lambs; terramycin feeding of calves; and FOOT ROT and INTERNAL PARASITISM in intensively managed sheep.

—D. S. RABAGLIATI.

NEW ZEALAND. (1956). **Canterbury Agricultural College, Lincoln. Annual review for year**

ending 30th June 1956. pp. 97. Christchurch, N.Z.: Simpson & Williams Limited. [Items of veterinary interest pp. 53-56 & 83-86.] **1941**

Trials were carried out over an eight-year period to compare the lamb and wool production of 130 Corriedale ewes (as controls), 150 Border Leicester x Corriedale, 90 Border Leicester x Merino and 80 Cheviot x Merino ewes run as one mob under fat lamb production conditions. Full lambing, drafting, weaning and fleece data were obtained and these are to be published separately. The Border-Leicester x Corriedale ewes weaned 17% more lambs, gave 32% more fat lambs off their mothers at 2·8 lb. higher carcass weight than the controls. Information was collected on environmental conditions associated with field outbreaks of VAGINAL PROLAPSE in ewes. The survey covered some 80,000 ewes on 190 farms. The incidence of VAGINAL PROLAPSE before lambing over all ewes was 0·46%—the incidence after lambing was 0·075%. The incidence on hills and down country before lambing was four and a half times higher than on flat country. This high incidence on hills supports the hypothesis that the pressure developed in the abdominal cavity is of aetiological importance. Experiments were also carried out on PREGNANCY TOXAEMIA in ewes. In a study on CONGENITAL SKIN FRAGILITY, normal ewes mated with affected rams bore offspring with normal skins. Larger scale trials will be necessary.

—D. S. RABAGLIATI.

U.S.A. (1956). **University of Florida. Annual Report of the Agricultural Experiment Stations for the fiscal year ending June 30, 1955.** pp. 356. Gainesville, Florida: The University. [Veterinary science—pp. 156-161.] **1942**

The work of the Animal Husbandry and Nutrition Departments was continued as in the previous year . A small flock of Hampshire sheep had been added and a small herd of dwarf-carrier cows and of dwarf calves was obtained to be used in testing bulls in station herds and to study the genetics and heredity of this problem.

In the Veterinary Section basic fundamental research on LEPTOSPIROSIS and on ACTINOBACILLOSIS in cattle was initiated. Research on the role of nucleoproteins in FOWL LEUCOSIS indicated that certain tissue reactions occur as the result of the injection of nucleoprotein preparations from normal fowl tissues; they were more prononuced with preparations from tissues of day-old chicks than from those of mature birds.

A vaccination programme against ANAPLASMOSIS in cattle in a large dairy was continued for the third year. The vaccine, citrated carrier blood, is administered subcutaneously in 1 ml. doses to young calves. To date, 375 animals have received vaccine at the age of one to three months.

Experiments were also carried out on the control of lungworm.

Vibrio fetus was recovered from 13 bovine foetuses and from semen from two bulls. Six strains of vibrio organisms of human origin have been identified as *V. fetus* on the basis of their biological, morphological, pathogenic, biochemical and serological characteristics.

Administration of NEWCASTLE DISEASE vaccine in the drinking water compared favourably with intranasal vaccination in young chickens.—D. S. RABAGLIATI.

U.S.A. (1956). **Montana. Report to the Montana Livestock Sanitary Board. July 1, 1955—June 30, 1956.** [MARSH, H.] pp. 28. **1943**

The laboratory space was inadequate for the work being done and which should be done.

The sanitary supervision of livestock auction markets was improved.

Eighteen slaughtering plants were operating under State supervision, four were Federally inspected slaughtering plants and 46 are operating under licence from the Montana Livestock Sanitary Board without any meat inspection. Nevertheless, 28% of the carcasses came under the first heading, 68% under the second and only 4% under the third where there is no meat inspection.

The Montana BRUCELLOSIS eradication programme is yielding good results and about 75% of the work has been completed. Twenty-two counties are now classed as modified BRUCELLOSIS-free areas in which all herds of breeding cattle must be blood-tested with infection in less than 5% of herds and 1% of cattle. The other counties are rapidly coming into line.

Out of a total of 20,417 cattle tuberculin tested nine were reactors and of these only three showed lesions at P.M. examination.

117 cases of RHINOTRACHEITIS ("red nose") were reported in 11 lots of fattening cattle. The disease had been reported in Colorado, but not previously in Montana.

During the year, 224,163 diagnostic tests were made in the laboratory at Helena (including 218,882 serum and milk tests for BRUCELLOSIS), and the Veterinary Research Laboratory at Bozeman tested 6,173 samples for ANAPLASMOSIS.—D. S. RABAGLIATI.

BOOK REVIEWS

RUSSELL, F. C. & DUNCAN, D. L. (1956). **Minerals in pasture: deficiencies and excesses in relation to animal health.** pp. 170. Farnham Royal: Commonwealth Agricultural Bureaux. Technical Communication No. 15 of the Commonwealth Bureau of Animal Nutrition. 2nd Edit. 25s. **1944**

This is not a text-book but a review of the more recent contributions to the knowledge of mineral deficiencies and excesses in various parts of the world.

Early reviews of the literature on minerals in pasture had appeared in 1928 and 1929, and dealt chiefly with calcium, phosphorus, iodine and iron. Since this work has been largely assimilated into the standard text-books, and very little new work has appeared, these minerals receive only brief mention in the present edition. By 1944 the significance of trace elements in connexion with deficiency diseases had been established, and the first edition of this publication, appearing in that year, contained chapters on single and dual deficiencies of cobalt and copper. In the present edition these two elements receive special attention, and five chapters (more than two-thirds of the volume) deal with deficiency of cobalt, dual deficiency of copper and cobalt, and deficiency and excess of copper and the possible relationships with molybdenum, sulphate and manganese. The expansion of this work, and the numbers of publications, show the importance attached to solving these problems, which interfere so drastically with animal production in some parts of the world.

In the foreword Dr. H. Greene points out how geochemical studies can contribute towards an understanding of the distribution of minerals in rocks, and how the processes of soil formation can separate minerals occurring together in the parent rock. He also draws attention, however, to the errors of over emphazing the function of trace elements in animal nutrition.

Apart from cobalt and copper, the volume contains six chapters which deal with deficiencies of sodium, potassium and chloride, phosphorus and calcium, iodine, and excesses of selenium, fluorine, arsenic, or nitrate, and a short general discussion.

Hypomagnesaemic tetany is dealt with in the chapter on sodium, potassium and chloride, as it has not been shown that a deficiency of magnesium in pastures is concerned, and evidence exists that imbalance of these three elements may be operative.

The review is comprehensive and the available information on each element or group of elements is methodically and lucidly presented. Reports from the different affected areas are dealt with separately, and clinical signs, composition of blood and tissues, type of soil, composition of pasture, together with the results of feeding experiments and other experimental studies are detailed and discussed. The general conclusions to be drawn and an assessment of the present state of the knowledge of each condition is given at the end of each section. As well as numerous analytical figures quoted in the text, fifty-six tables of results of experimental work are presented. References are given at the end of each section and a list of review articles at the end of the book. Also included, as an appendix, is a table summarizing the main investigations.

This edition gives a good picture of the recent work on minerals and should form a very useful reference book for all those interested in the nutrition of the grazing animal. With modern developments in grassland management constantly increasing yields, an understanding of the mineral contents of pasture and their relationships in animal nutrition, is becoming increasingly important both to the farmer and the veterinarian.—J. R. TODD.

MOZLEY, A. (1957). **Liver-fluke snails in Britain.** pp. xii + 55. London: H. K. Lewis & Co. Ltd. 9s. **1945**

This book is a further addition to a series by the same author concerning the snail hosts of certain parasitic diseases and their control. It describes in simple terms how to identify the snail *Lymnaea truncatula,* intermediate host of *Fasciola hepatica,* and gives an account of habitats which are typical of different parts of Britain. These habitats are then classified, and analysed, and as a result the author is optimistic about the eventual elimination of liver fluke disease from large areas of the country. The book concludes with a series of recommendations designed to control the disease.

—C. B. OLLERENSHAW.

BUGHER, J. C., COURSAGET, J. & LOUTIT, J. F. [Edited by.] (1956). **Progress in nuclear energy. Series VI. Biological sciences. Volume I.** pp. x + 205. London: Pergamon Press Ltd. 50s. **1946**

This book is one of a series of eight and contains, in a clear, condensed form, the subject matter of the discussions (and other papers sub-

mitted but not read) at the International Conference on the Peaceful Uses of Atomic Energy held at Geneva in 1955. The theoretical and practical aspects, the present uses and future possibilities of atomic energy are dealt with in eight chapters of which four refer to the: Mode of Radiation Injury—Bone and Carcinogenesis —and, Sterility and Foetal Damage; Genetics—Fundamental Effects of Radiation and the Hazard to Man; Radioisotopes in the Study of Mineral Metabolism; and, The Use of Radioisotopes in Animal Biochemistry. The rest deal with applications of nuclear energy in agriculture. Each chapter is preceded by an abstract and, for the benefit of the specialist, is followed by a list of references to papers on the subjects treated. The book is handsomely bound, and print and paper are very good.—T.E.G.R.

BUGHER, J. C., COURSAGET, J. & LOUTIT, J. F. [Edited by.] (1956). **Progress in nuclear energy. Series VII. Medical sciences. Volume I.** pp. xii + 165. London: Pergamon Press Ltd. 42s. **1947**

This book is a very readable and worthwhile volume for any veterinary worker eager to survey the applications of nuclear energy to his field. There is no attempt to thrust upon the reader a mass of complex physical data as with many books dealing with the biological aspects of nuclear energy. Each chapter is written by a specialist author or authors. The chapter headings are: Radioactive isotopes in medical diagnosis; The diagnosis and investigation of disease with radioactive isotopes; Nuclear radiations for radiotherapy with external sources; Radioactive materials for internal therapy; Principles and standards of radiation safety; Health and safety activities in reactor and chemical processing plants; and Dosimetry of ionising radiation.

The first chapter is an excellent review of its subject with a good bibliography and emphasizes much of the subject matter presented before the Geneva Conference on Peaceful Uses of Atomic Energy, 1955. Subsequent chapters maintain a similar standard, although the incorporation of more tables and diagrams would have been an improvement. The chapter on the principles and standards of radiation safety is extremely useful, and gives an outline of the legal approach of several countries to the control of radiation hazards.—D. S. PAPWORTH.

ANON. (1956). **Corticosteroid therapy. The first hundred years.** pp. 92. Folkestone: Pfizer Ltd. **1948**

The opening chapter of this little book, intended primarily for medical practitioners, gives the historical background of the development of corticosteroids since attention was first drawn to the importance of the adrenal gland by Addison just over a hundred years ago. The chemistry, physiology and pharmacology of these compounds are concisely and clearly explained. The following five chapters deal with the systematic administration, uses, indications and contra-indications, and possible side-effects of corticosteroid therapy. In the seventh and last chapter a few of the more controversial aspects of hormone therapy are discussed and recent advances made in this field are briefly reviewed. Each chapter is followed by a list of references and the volume is very well indexed.—T.E.G.R.

SPECTOR, W. S. [Edited by.] (1956). **Handbook of biological data. Prepared under the direction of the Committee on the Handbook of Biological Data, Division of Biology and Agriculture, The National Academy of Sciences, the National Research Council.** pp. xxxvi + 584. Springfield, Ohio: Wright Air Development Center, Air Research and Development Command, United States Air Force, Wright-Patterson Air Force Base, Ohio. [WADC Technical Report 56-273. ASTIA Document No. AD 110501.]

SPECTOR, W. S. [Edited by.] (1956). **Handbook of biological data. Prepared under the direction of the Committee on the Handbook of Biological Data, Division of Biology and Agriculture, the National Academy of Sciences, the National Research Council.** pp. xxxvi + 584. Philadelphia (& London): W. B. Saunders Company. 52s. 6d. **1949**

This work is available in two formats: (1) a paper-backed volume for distribution to "qualified requesters," and (2) a volume bound in stiff covers published by Saunders for general sale.

This quite outstanding book, which must have involved an enormous amount of work, cannot fail to be of great value to workers in many fields of biological science. The scope and variety of the information tabulated is amazing and it is sure to become an indispensible work of reference in laboratories throughout the world. A review of the book is printed in the preliminary pages, and this describes its scope and contents so well that it is here reproduced *verbatim*.

"This report presents tabular data and

certain graphs, charts and diagrams in the broad areas of plant, animal, and pre-clinical medical sciences. The principal factors in selecting table subjects and data were their basic importance or wide general interest, and adaptability to tabular presentation. The report, as presented, represents a condensation and abridgement of some 20,000 pages.

"The tables are arranged under the following categories: (I) Biochemical and Biophysical Characteristics; (II) Genetics, Cytogenetics, and Reproduction; (III) Development and Morphology; (IV) Nutrition, Digestion, and Metabolism; (V) Respiration and Circulation; (VI) Other Physiological Activities and Performances; (VII) Biologically Active Compounds; (VIII) Environment and Survival; (IX) Symbiosis and Parasitism; and (X) Ecology and Biogeography. In every category some tables will be of interest to those in major branches of biology.

"Material in this Handbook, like that in the previous reports—AFTR 6039, "Standard Values in Blood" [*V.B.* **24,** 273]; WADC TR 52-301, "Standard Values in Nutrition and Metabolism" [*V.B.* **25,** 3896]; and WADC TR 55-16, "Handbook of Toxicology"—are unique in the high degree of authoritativeness sought for the data. Values have been supplied and authenticated by more than 4,000 leading investigators in the fields of biology and medicine. The review process to which the tables have been subjected, was designed to eliminate, insofar as possible, all errors and any controversial or 'borderline' information, leaving only what is accepted as established fact or recognized theory.

"These tables, like those in the previous reports, are also unusual in their treatment of the well-known phenomenon of biological variability. They present for each variable, whenever it has been possible to secure the information, not only a representative value, but also the ordinary range of variation for the variable. In this respect, the tables set a standard for future publications of tabular data in the biological sciences.

"Quantitative data are supplemented with such essential information as units, methods, and conditions of measurement, conversion factors, glossaries, and taxonomy lists. An Appendix and an unusually complete Index are included."

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

SMITH, K. M. & LAUFFER, M. A. (1957). **Advances in virus research. Vol. IV.** pp. ix+340. New York: Academic Press Inc. (London: Academic Press Ltd.) $8.00.

ANON. (1956). **Proceedings of the First International Conference on the Use of Antibiotics in Agriculture held under the auspices of the Agricultural Board and the Agricultural Research Institute, National Academy of Sciences—National Research Council 19-21 October 1955.** pp. xx+278. Washington: National Academy of Sciences—National Research Council. $2.50. [Publication 397.]

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey, Surrey.

RECENT PUBLICATIONS

NEOPLASMS OF THE DOMESTICATED MAMMALS

A REVIEW

by

E. COTCHIN, M.R.C.V.S.

Department of Pathology, Royal Veterinary College, London

(Review Series No. 4 in the series published by the Commonwealth Bureau of Animal Health)

Crown 4to with stiff cover pp.xv + 100
Over 950 references

Price 20s.

The only comprehensive review in the English language since the publication of Feldman's monograph in 1932. Separate chapters deal systematically with the neoplasms of the various body systems in each of the domestic mammalian species. The book will be of value to veterinarians, pathologists and cancer research workers.

SALMONELLOSIS IN ANIMALS

A REVIEW

by

A. BUXTON, Ph.D., M.R.C.V.S.

Department of Veterinary Pathology, University of Liverpool

(Review Series No. 5 in the series published by the Commonwealth Bureau of Animal Health)

Medium 8vo with stiff cover. pp.v + 209
Over 1,750 references

Price 25s.

A comprehensive review of the SALMONELLA infections of domestic animals and poultry, fur-bearing animals, rodents, reptiles, insects and ticks. The main chapters cover: General characters of the organisms; classification; distribution of species in animals; symptoms and lesions; epidemiology; immunology; chemotherapy and disinfection; and public health aspects. There are numerous tables (antigenic structure of serotypes; host species of serotypes; fermentation reactions, etc.). Veterinarians, whether engaged in research, teaching or practice, and medical workers in the field of public health will find it an invaluable reference book.

Orders to: **Central Sales, Commonwealth Agricultural Bureaux, Farnham Royal, Bucks, England.**

NUTRITION ABSTRACTS AND REVIEWS

A quarterly journal which covers the fields of human and animal nutrition. It includes everything from analytical, clinical and experimental techniques to immunology and therapeutic diet.

Special attention is given to the relations of diet to health. In the animal section a subsection is devoted to diseases due to dietary deficiency, for instance deficiency of trace elements in pasture; disorders of metabolism such as grass tetany; and the effect of diet on resistance to infections and toxins.

A review article appears in each quarterly issue. Recent articles of particular interest to animal health are: The Fluorine Problem in Livestock Feeding; Vitamin E in the Nutrition of Farm Animals; Nutrition and Host-Helminth Relationships; The Nutrition of the Horse.

The current volume is Volume 27 (Jan., April, July, Oct., 1957). Price 105s. (U.S.A. $15.75.)

Back numbers of certain volumes are still available. Subscriptions should be sent to The Secretary, Nutrition Abstracts and Reviews, Rowett Research Institute, Bucksburn, Aberdeenshire, Scotland.

For prevention and relief of anaemia and scour due to deficiency

OXOID

VITAMINISED LIVER EXTRACT (Veterinary)

'Oxoid' Vitaminised Liver Extract (Veterinary) is prepared specifically for use in the treatment and prevention of disease due to mineral or vitamin deficiency. It contains naturally occurring factors of the Vitamin B complex, fortified with synthetic vitamins. Potency and freedom from toxic substances are determined clinically before issue.

Tests conducted by well-known Veterinary Surgeons confirm that this Extract is a remarkable advance in the treatment of deficiency diseases.

Literature upon request

FORMULA:

Each ml. of Liver Extract is fortified with

Vitamin B_1 50mg
Vitamin B_2 1mg
Nicotinamide 75mg
Vitamin B_6 2.5mg
Calcium Pantothenate 2.5mg
Vitamin B_{12} 15mcg

OXO LTD. (VETERINARY DEPT.) 16 SOUTHWARK BRIDGE ROAD, LONDON S.E.1

Tel: WATerloo 4515

THE VETERINARY BULLETIN

Published monthly on the 1st of the month, 12 issues per volume. A combined Author and Subject Index is issued for each volume. Price 7s. 6d. net per issue. Annual subscription 70s. net.

All publications of Commonwealth Agricultural Bureaux are obtainable from:—
CENTRAL SALES BRANCH (COMMONWEALTH AGRICULTURAL BUREAUX)
FARNHAM ROYAL, NR. SLOUGH, BUCKS, ENGLAND

Subscribers (other than trade) resident in the British Commonwealth, the Republic of the Sudan or the Republic of Ireland obtain a 20 per cent. discount on the annual subscription on orders sent direct to the Central Sales Branch, thus making the subscription 56s. net.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey, Surrey.